HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS
ELLICOTT CITY, MARYLAND 21043

TRAVERSE TABLE				
POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
101	563122.5390	1396898.9520	21.53	REBAR & CAP
102	563023.6046	1396808.6170	18.15	REBAR & CAP
200	563318.4736	1396497.7182	30.66	REBAR & CAP
201	563538.9792	1396124.0581	31.84	REBAR & CAP
202	563570.0729	1395797.7607	30.77	MAG NAIL
249	563655.3019	1395855.7838	30.43	MAG HUB
250	563571.7684	1395929.5362	30.87	MAG HUB
252	563382.4087	1396151.3678	31.28	MAG HUB
253	563394.3626	1396310.0634	31.01	MAG HUB
254	563353.4901	1396623.1222	29.07	MAG HUB
255	562994.5548	1396963.3404	13.33	MAG HUB
256	563168.2599	1396973.4628	21.87	MAG HUB
257	563284.3019	1397064.9756	16.00	MAG HUB

SURVEY CONTROL

B.M. #1
HOWARD CO. CONTROL PT. 0024
BRASS DISC
NAD 83 (Adj 1991): N 565,065.4801
E 1,395,212.0854
NAVD 88: EL. 26.936

B.M. #2
HOWARD CO. CONTROL PT. 38BB
BRASS DISC
NAD 83 (Adj 1991): N 564,007.6797
E 1,393,649.8349
NAVD 88: EL. 63.652

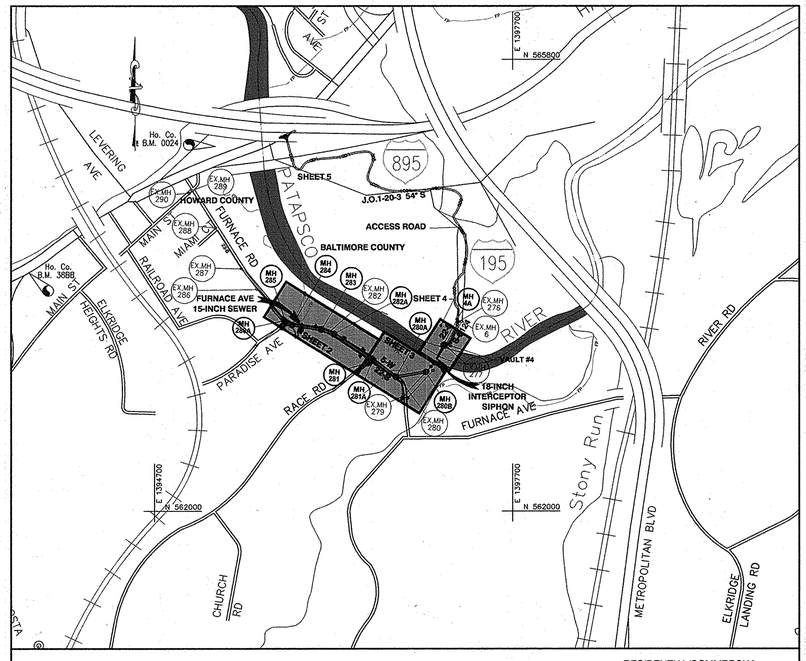
SEWER STAKEOUT TABLE		
ITEM	NORTHING	EASTING
MANHOLE #286A (HO. CO. STD. G-5.12)	563,596.88	1,395,791.43
MANHOLE #285 (HO. CO. STD. G-5.12)	563,589.35	1,395,798.02
MANHOLE #284 (HO. CO. STD. G-5.12)	563,565.81	1,395,853.02
MANHOLE #283 (HO. CO. STD. G-5.12)	563,528.08	1,396,099.66
MANHOLE #282A (HO. CO. STD. G-5.12)	563,490.00	1,396,202.84
MANHOLE #281A (HO. CO. STD. G-5.12)	563,269.43	1,396,530.86
MANHOLE #280A (HO. CO. STD. G-5.12)	563,128.42	1,396,724.24
MANHOLE #280B (HO. CO. STD. G-5.12)	563,170.69	1,396,974.60
MANHOLE #4A (HO. CO. STD. G-5.14)	563,397.12	1,397,122.51

TEST PIT TABLE				
TH#	NORTHING	EASTING	TOP ELEV.	UTILITY
1	563593.33	1395793.42	26.48	6" STEEL GAS
2	563585.22	1395796.93	25.82	6" STEEL GAS
3	563582.03	1395809.61	26.92	6" CAST IRON WATER
4	563558.63	1395900.40	27.75	(2) 2" PLASTIC FIBER OPTIC
5	563554.39	1395935.85	25.84	8" DUCTILE IRON WATER
6	563350.30	1396401.54	27.58	(4) 1" ELECTRIC DBC's
7	563331.71	1396438.49	27.56	2" PLASTIC GAS
8	563282.56	1396514.81	25.35	8" CAST IRON WATER

QUANTITIES				
ITEM	UNIT	ESTIMATE	AS-BUILT	SUPPLIER
15" PVC SDR 26 SEWER MAIN	L.F.	1381	___	___
18" DIP CLASS 54 SEWER MAIN TR FLEX OR EQUAL	L.F.	147	___	___
18" DIP CLASS 54 SEWER MAIN W/RESTRAINED TYTON JOINTS	L.F.	15	___	___
18" DIP CLASS 54 FLANGED	L.F.	17	___	___
20" DIP CLASS 54 SEWER MAIN	L.F.	5	___	___
8" SEWER PVC SDR 26	L.F.	7	___	___
STD. 4'-0" PRECAST MANHOLE WT	EA.	7	___	___
6' DOGHOUSE MANHOLE	EA.	1	___	___
8' MANHOLE	EA.	1	___	___
4' ADDITIONAL MANHOLE	V.F.	58	___	___
6' ADDITIONAL MANHOLE	V.F.	7	___	___
8' ADDITIONAL MANHOLE	V.F.	7	___	___
VAULT MODIFICATION	L.S.	1	___	___

LEGEND

- TRAVERSE
- PROPERTY LINE
- DECIDUOUS TREE
- EVERGREEN TREE
- EX. CONTOUR
- EX. SAN. MANHOLE
- EX. SAN. SEWER MAIN
- EX. WATER MAIN
- PROP. SAN. MANHOLE
- PROP. SAN. SEWER
- DEWATERING BASIN
- SOIL BORING
- TREELINE
- RIPRAP
- LOD LIMITS OF DISTURBANCE
- SUPER SILT FENCE
- SILT FENCE
- ACCESS ROAD
- 100 YEAR FLOODPLAIN
- 25 FT WETLAND BUFFER
- NON-TIDAL WETLAND BOUNDARY
- SANDBAG / STONE DIVERSION



TYPE OF BUILDINGS: RESIDENTIAL/COMMERCIAL
NUMBER OF PARCELS: N/A
SEWER HOUSE RE-CONNECTIONS: 3
DRAINAGE AREA: PATAPSCO

VICINITY MAP
SCALE : 1" = 600'

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS

CAPITAL PROJECT NO. S-6271
CONTRACT NO. 10-4727

INDEX OF SHEETS

GENERAL NOTES

1. Approximate locations of existing utilities are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer by the Contractor at the Contractor's expense.
2. Topographic field surveys were performed in September 2010 by Mercado.
3. Horizontal and Vertical Survey Controls:
   The coordinates shown on the drawings are based on Maryland State Reference System NAD 83/91 and NAVD 88 as projected by Howard County Geodetic Control Stations Howard Co. B.M. 0024 and B.M. 38BB.
4. All pipe elevations shown are invert elevations unless otherwise noted on the plans.
5. Clear all utilities by a minimum of 12".
6. For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction (Latest Edition). The Contractor shall have a copy of Volume IV on the job.
7. All existing utilities shall be test pitted/located as necessary in advance of the proposed construction, in order to properly make all required utility crossings and/or connections. Any discrepancies or utility conflicts shall be immediately reported to the Engineer. Where test pits have been made on existing utilities, they are noted by the symbol ■ at the location of the test pit. A note or notes containing the results of the test pit or pits is included on the drawings or specifications. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the Contractor two (2) weeks in advance of construction operations at his own expense.
8. Contractor shall notify the following utility companies or agencies at least five (5) working days before starting work shown on these plans:

AT&T	1-800-252-1133
BGE - Contractor Services	410-637-8713
BGE - Emergency	410-685-0123
Bureau of Highways	410-313-7450
Howard County Bureau of Utilities (DPW)	410-313-4900
Baltimore County Bureau of Utilities (DPW)	410-887-1894
Colonial Pipeline Co.	1-800-257-7777
Miss Utility	410-531-5533
State Highway Administration	1-800-743-0033 / 410-224-9210
Verizon	

9. Trees and shrubs are to be protected from damage to the maximum extent. Trees and shrubs located within the construction strip noted by the symbol are to be protected in accordance with Howard County Volume IV Design Manual Standard Detail L-9.02.
10. Contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the sanitary sewer.
11. The approval of these drawings will constitute compliance with DPW requirements per Section 18.114(a) of the Howard County Code.
12. The Contractor shall provide all necessary lines, grades and elevations, and cut sheets shall be prepared based on the lines and grades shown on the Contract drawings.

SEWER MAIN NOTES

1. 20" sewer main shall be Class 54 DIP. 18" siphon main shall be Class 54 DIP TR Flex or equal. 18" Pigging access pipe will be Tyton Joint with restrained fittings. All 15" sewer mains shall be PVC SDR 26.
2. Distances shown for the sewer main are along the centerline of the pipe from manhole to manhole.
3. Elevations shown are to the invert of the sewer main.
4. All manholes shall be 4'-0" inside diameter unless otherwise noted.
5. Manholes designated as W.T. in Plan and Profile shall have water tight frames and covers, Standard Detail G5.52.
6. Use caution when excavating under power lines.
7. See Sewage Bypass Pumping in the Special Provisions.

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10966 EXPIRATION DATE: MAY 12, 2014

Thomas N. DallaPalu — 10/2/2013
Signature of Engineer — Date

HOWARD COUNTY

BY THE OWNER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Wes Daub — Oct. 4, 2013
OWNER — DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Thomas N. DallaPalu — 10/2/2013
ENGINEER — DATE

This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John P. Robertson Jr.S. — 10/16/13
HOWARD SOIL CONSERVATION DISTRICT — DATE

BALTIMORE COUNTY

OWNER'S/DEVELOPER'S CERTIFICATION:

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE ALSO CERTIFY THAT THE SITE WILL BE INSPECTED AT THE END OF EACH WORKING DAY, AND THAT ANY NEEDED MAINTENANCE WILL COMPLETED SO AS TO INSURE THAT ALL SEDIMENT CONTROL PRACTICES ARE LEFT IN OPERATIONAL CONDITION. I/WE AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.

Wes Daub — Oct 4, 2013
SIGNATURE OWNER/DEVELOPER — DATE

WES DAUB — PROJECT MANAGER
PRINT NAME — TITLE

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL 10-17-13
DATE

Jeffrey P. West — 209-41313-13
DISTRICT OFFICIAL — PLAN NO.

TECHNICAL REVIEW FOR THE DISTRICT BY:
Sara C. Dulina

IF A GRADING PERMIT HAS NOT BEEN OBTAINED WITHIN TWO YEARS OF THIS APPROVAL, THIS PLAN SHALL BE RE-SUBMITTED TO THE DISTRICT.

CONSULTANT'S CERTIFICATION:

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT AND THE CURRENT STATE OF MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

Thomas N. DallaPalu — 10/2/2013
SIGNATURE — DATE

Thomas N. DallaPalu — 10966
PRINT NAME — MD LICENSE NUMBER

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — 10/15/13 DATE
CHIEF, BUREAU OF ENGINEERING — 10/7/13 DATE
CHIEF, BUREAU OF UTILITIES — 10/10/13 DATE
CHIEF, UTILITY DESIGN DIVISION WD — 10/7/13 DATE

Dewberry
Dewberry Consultants LLC
3106 LORD BALTIMORE DRIVE
SUITE #110
BALTIMORE, MARYLAND 21244
PHONE: 410.265.9500
FAX: 410.265.8875

STATE OF MARYLAND — THOMAS N. DALLAPALU — No. 10966 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

TITLE SHEET

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE: SHOWN

SHEET 1 OF 14

BC-1 OF 7

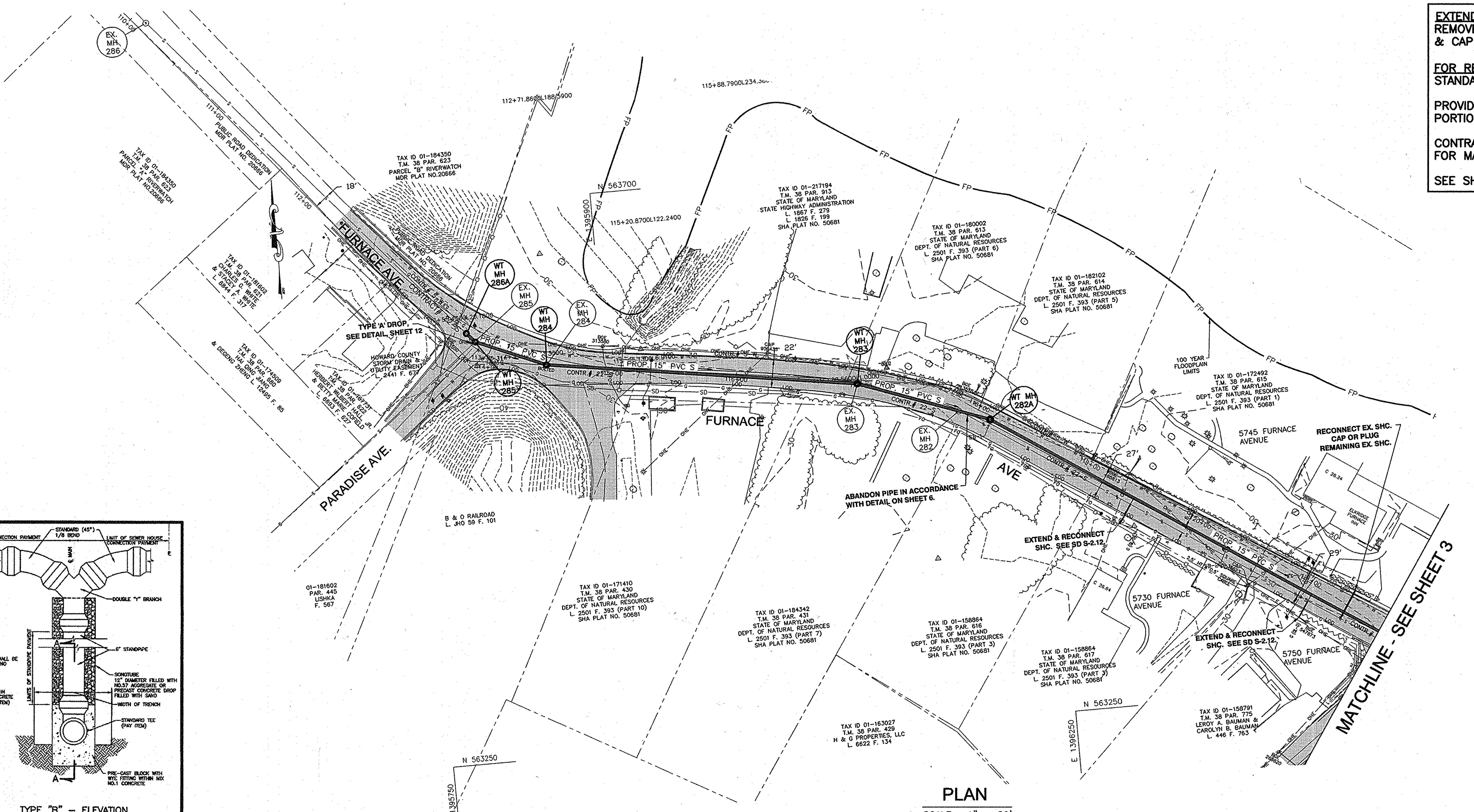
EXTEND & RECONNECTION TO EXISTING SHC
REMOVE SECTION OF EXISTING MAINLINE SEWER & CAP OR PLUG.

FOR RECONNECTION TO ALL SHC's, SEE STANDARD DETAIL S–2.12A ON THIS SHEET.

PROVIDE FULL TRENCH COMPACTION ALL PORTIONS OF 15–INCH SEWER CONSTRUCTION.

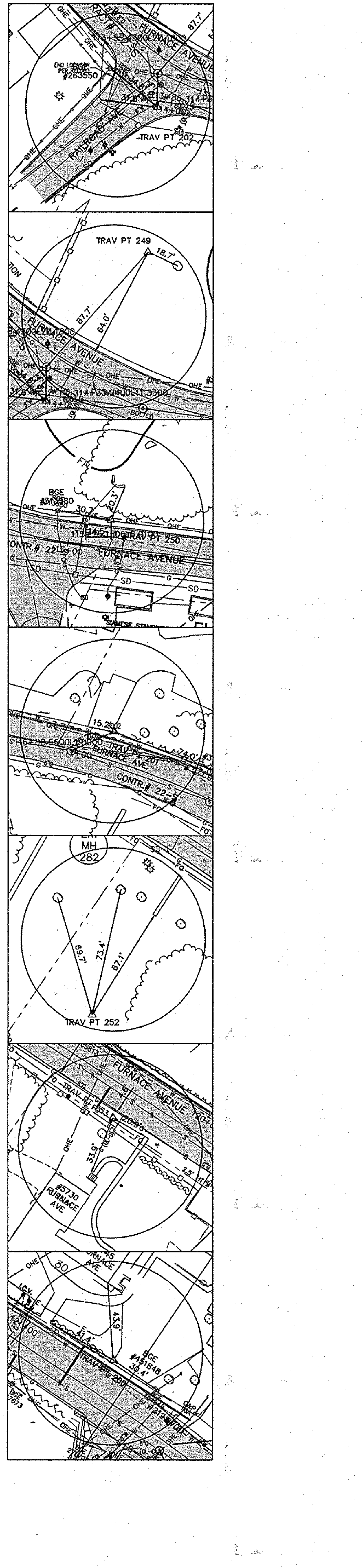
CONTRACTOR TO PROVIDE SEWER BYPASS PLAN FOR MANHOLES 286A THROUGH 282 A.

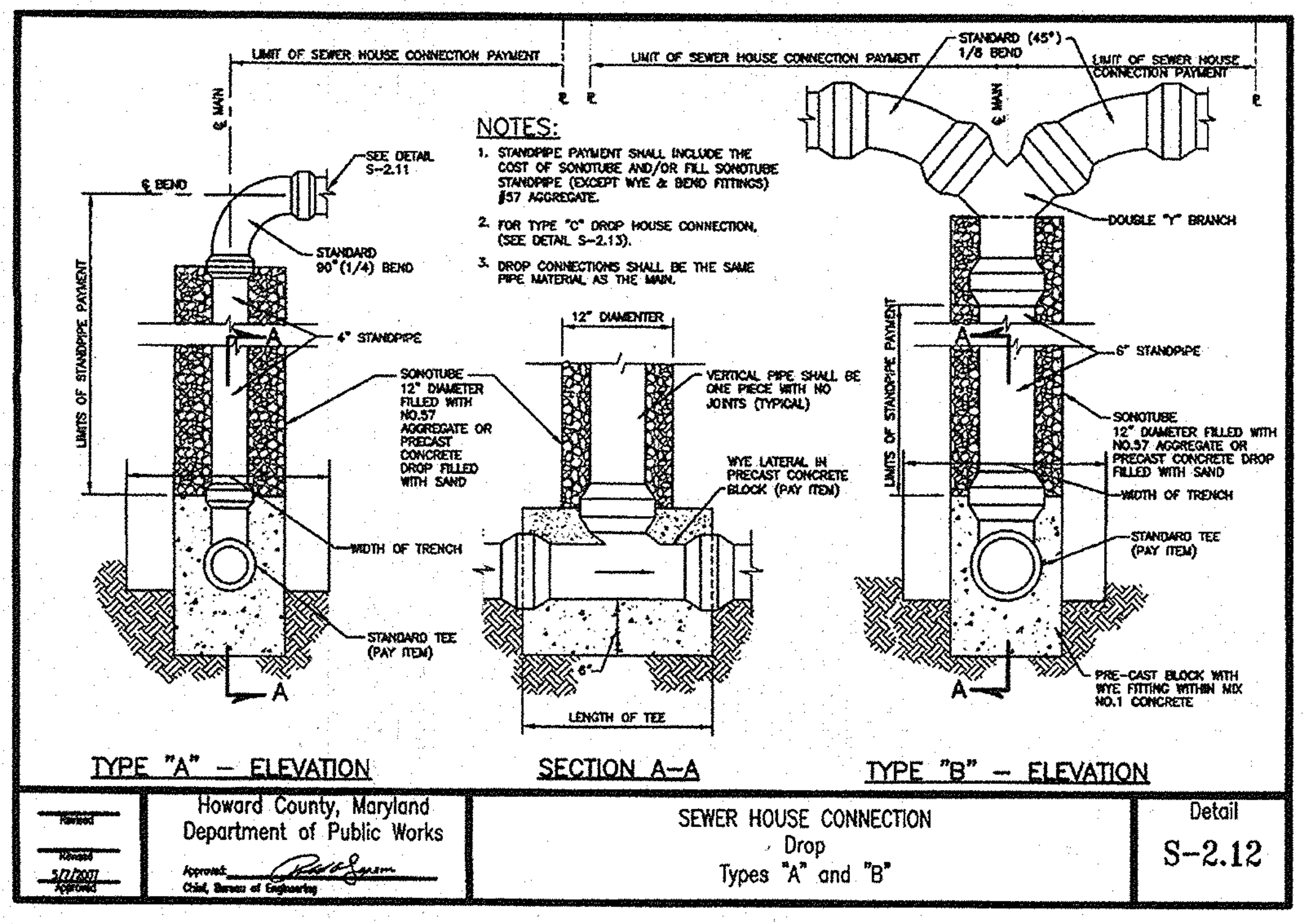
SEE SHEET 14 FOR TRAFFIC DETOUR PLAN.



PLAN

SCALE : 1" = 50'





NOTES:

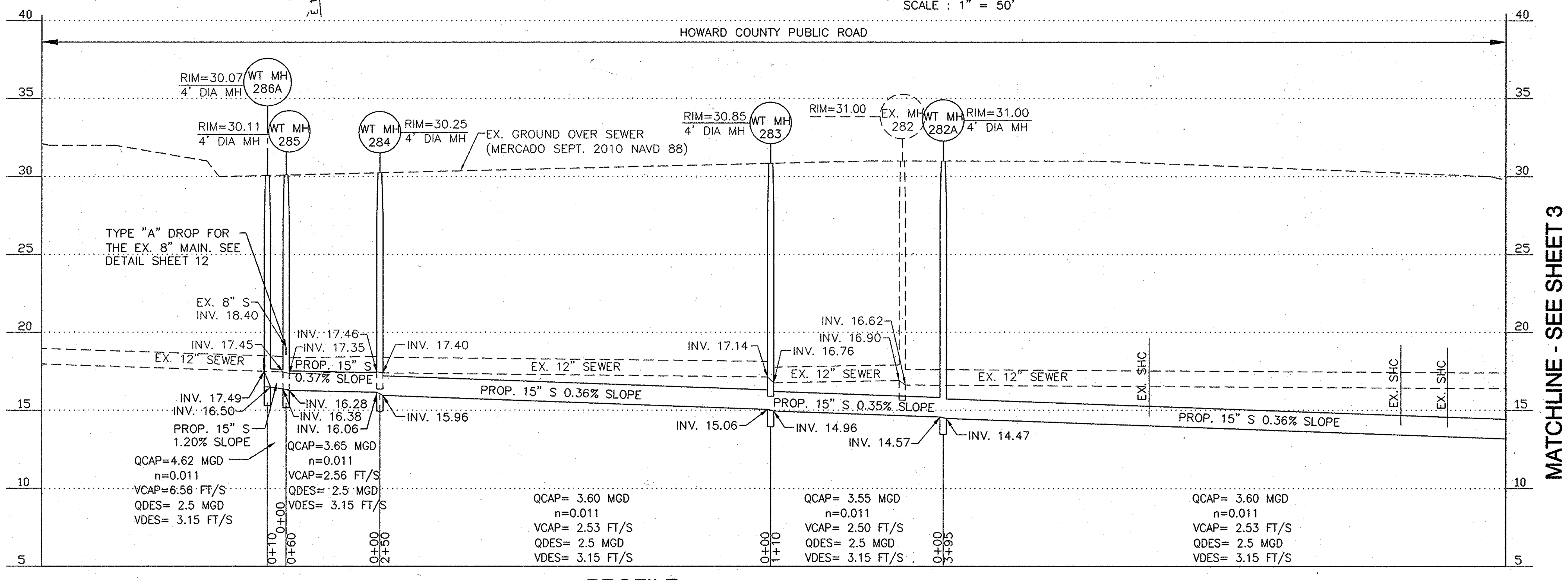
1. STANDPIPE PAYMENT SHALL INCLUDE THE COST OF SONOTUBE AND/OR FILL SONOTUBE STANDPIPE (EXCEPT WYE & BEND FITTINGS) #57 AGGREGATE.
2. FOR TYPE "C" DROP HOUSE CONNECTION, (SEE DETAIL S-2.13).
3. DROP CONNECTIONS SHALL BE THE SAME PIPE MATERIAL AS THE MAIN.

TYPE "A" – ELEVATION

SECTION A–A

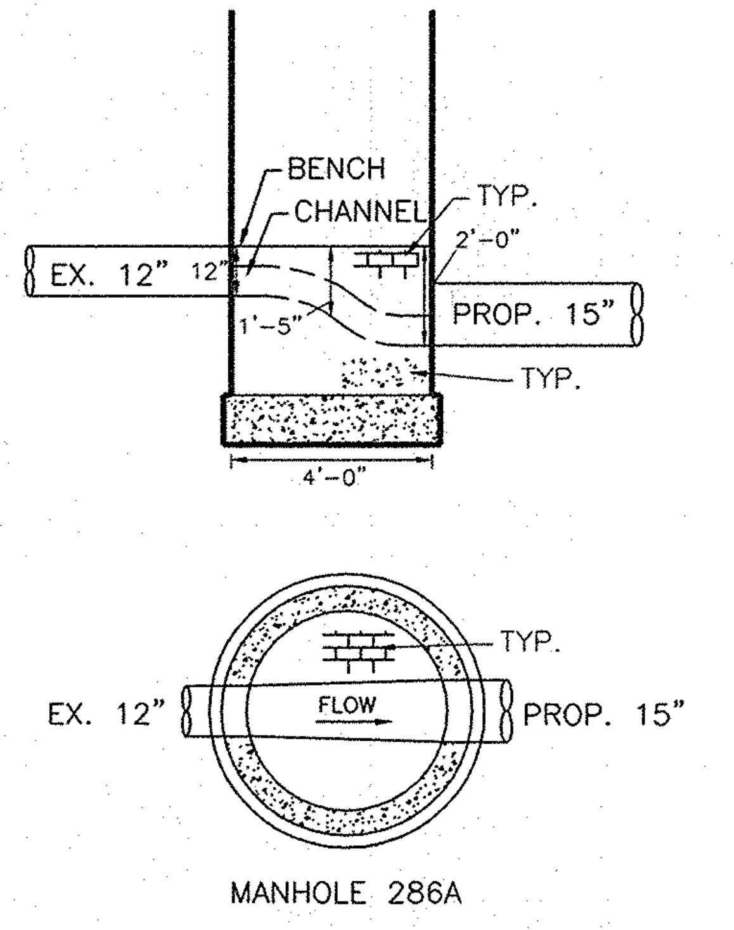
TYPE "B" – ELEVATION

Revised Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	SEWER HOUSE CONNECTION Drop Types "A" and "B"	Detail S-2.12



PROFILE

SCALE : HORIZ. 1" = 50'
VERT. 1" = 5'



CHANNEL LINING NOTES:

1. CHANNEL LINING SHALL BE EITHER BRICK OR PRECAST CONCRETE.
2. WIDTH OF CHANNEL SHALL MATCH INSIDE DIAMETER OF INCOMING AND OUTGOING PIPES. BLEND CHANNEL LINING FOR SMOOTH CONTOUR BETWEEN PIPES.
3. ALL INVERT ELEVATIONS SHALL BE AS SHOWN ON THE DRAWINGS.

MANHOLE 286A CHANNEL DETAIL

SCALE : NTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

	10/15/13	Thomas E. Butler	10/7/13
DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
	10/10/13		10/7/13
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION WD	DATE

Dewberry®
Dewberry Consultants LLC
3106 LORD BALTIMORE DRIVE
SUITE #110
BALTIMORE, MARYLAND 21244
PHONE: 410.265.9500
FAX: 410.265.8875

THOMAS N. DALLAPALU
No. 10966

DES: LAL				
DRN: RLI				
CHK: TND				
DATE: 10/2013	BY	NO.	REVISIONS	DATE

SANITARY SEWER PLAN & PROFILE

600' SCALE MAP NO. 38 | BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN
INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 | **HOWARD COUNTY, MARYLAND**

SCALE:
SHOWN

SHEET
2 OF 14

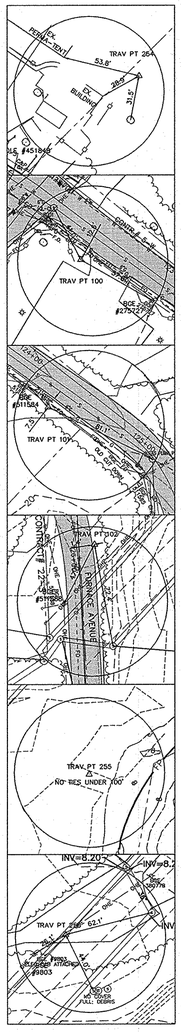
Plotted by: (rlane) on Plot Date: Oct 01, 2013 – 4:19pm
Path—> C:\Users\rlane\appdata\local\temp\AcPublish_5601\0–Plan n Profile.dwg
Tab–Layout Name: Sheet 2
Last Saved: Sep 30, 2013 – 3:09pm
XREFS—>R:\Projects\50008769 – Deep Run Siphon\CAD\00 –Border.dwg; XREFS—>R:\Projects\50008769 – Deep Run Siphon\CAD\

PRIOR TO ABANDONMENT OF PIPES & MANHOLE, CONFIRM THAT LINES TO BE ABANDONED ARE FREE OF WASTEWATER. IF WASTEWATER IS PRESENT, CONTACT ENGINEER IMMEDIATELY.

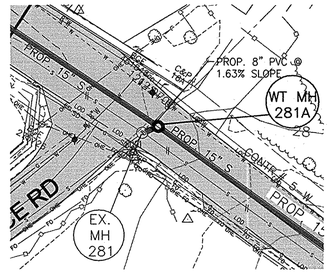
PROVIDE FULL TRENCH COMPACTION ALL PORTIONS OF 15-INCH SEWER CONSTRUCTION.

CONTRACTOR TO PROVIDE SEWER BYPASS PLAN FOR MANHOLE 280B.

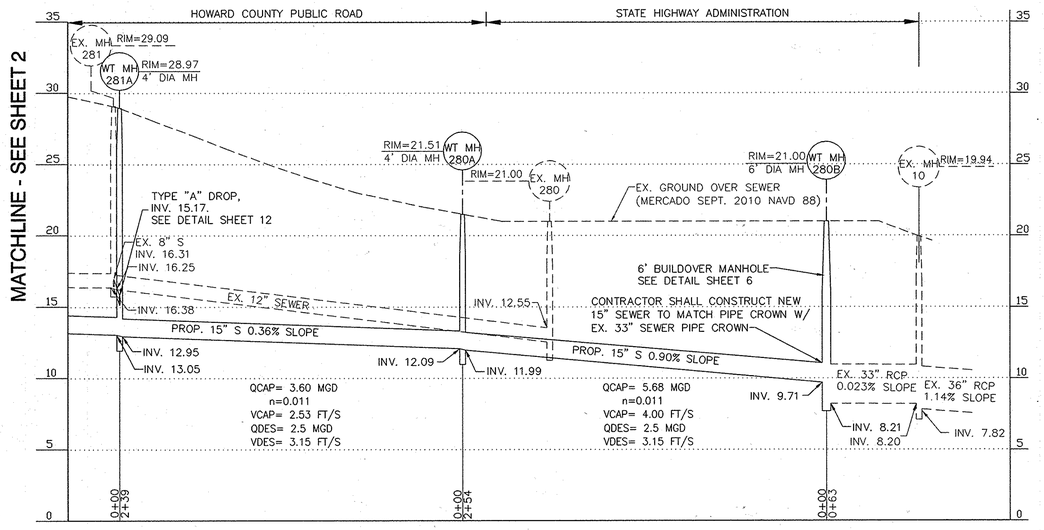
SEE SHEET 14 FOR TRAFFIC DETOUR PLAN.



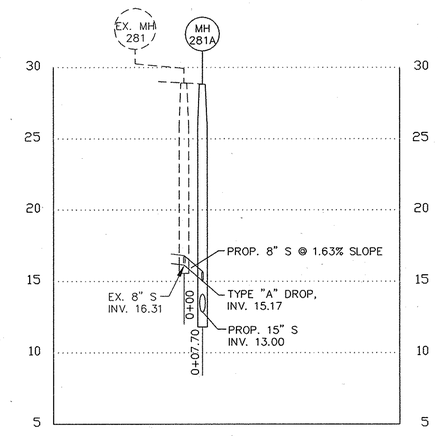
PLAN
SCALE : 1" = 50'



EX. MH 281 TO PROP. MH 281A PLAN
SCALE : 1" = 30'



PROFILE
SCALE : HORIZ. 1" = 50'
VERT. 1" = 5'



PROFILE
SCALE : HORIZ. 1" = 30'
VERT. 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/15/13
CHIEF, BUREAU OF ENGINEERING — DATE 10/2/13
CHIEF, BUREAU OF UTILITIES — DATE 10/15/13
CHIEF, UTILITY DESIGN DIVISION WP — DATE 10/2/13

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FAX: 410.265.8875

STATE OF MARYLAND — THOMAS N. DALPIAZ — No. 9305 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

SANITARY SEWER PLAN & PROFILE

600' SCALE MAP NO. 38 — BLOCK NO. 5

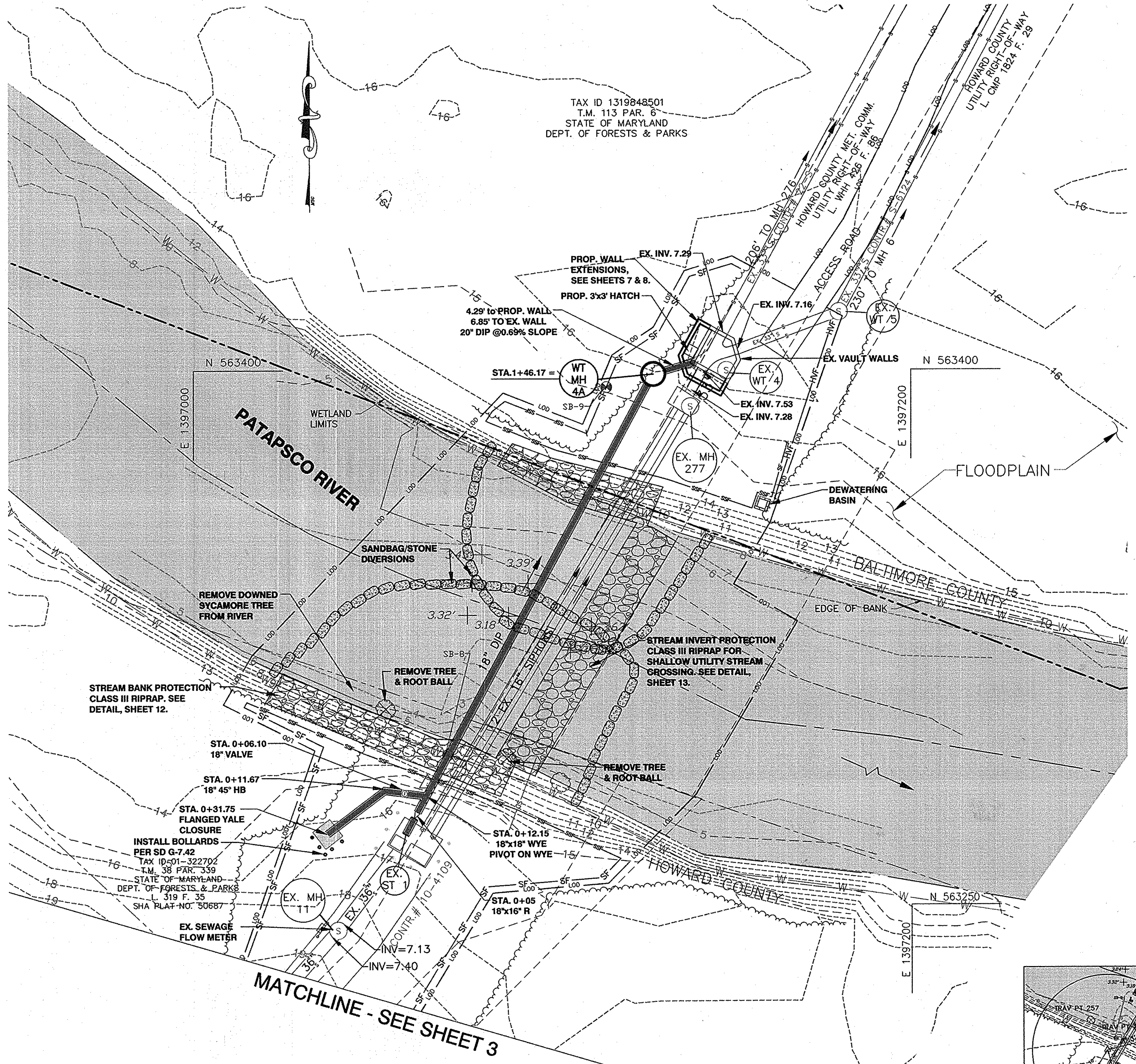
FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

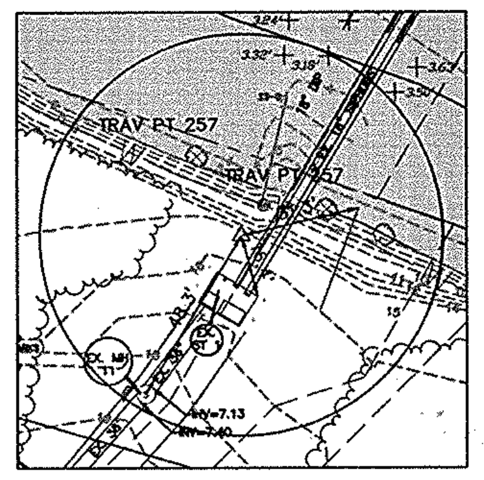
ELECTION DISTRICT NO. 1 — **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 3 OF 14

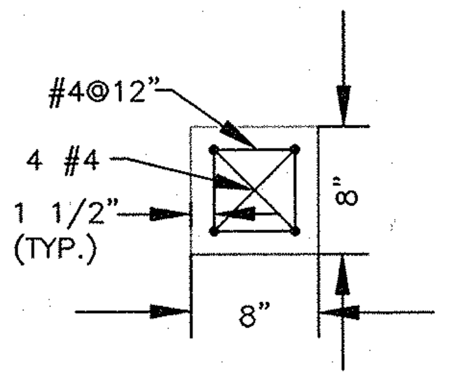
NOTES:
1. LOCATE EXISTING SIPHONS PRIOR TO PIPE LAYING OPERATIONS.
2. CONTRACTOR TO PROVIDE SANDBAG/STONE DIVERSION SIZED ACCORDINGLY & SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
3. BUILD OUT RIVER BANK TO 2:1 SLOPE PRIOR TO PLACEMENT OF STREAM BANK PROTECTION.
4. SEE SEWAGE BYPASS PUMPING IN THE SPECIAL PROVISIONS.





PLAN

SCALE : 1" = 20'



CONCRETE SUPPORT A-A DETAIL

SCALE : 1" = 1'

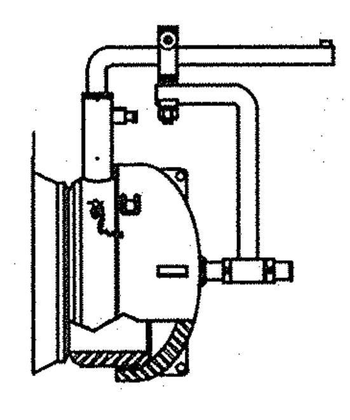
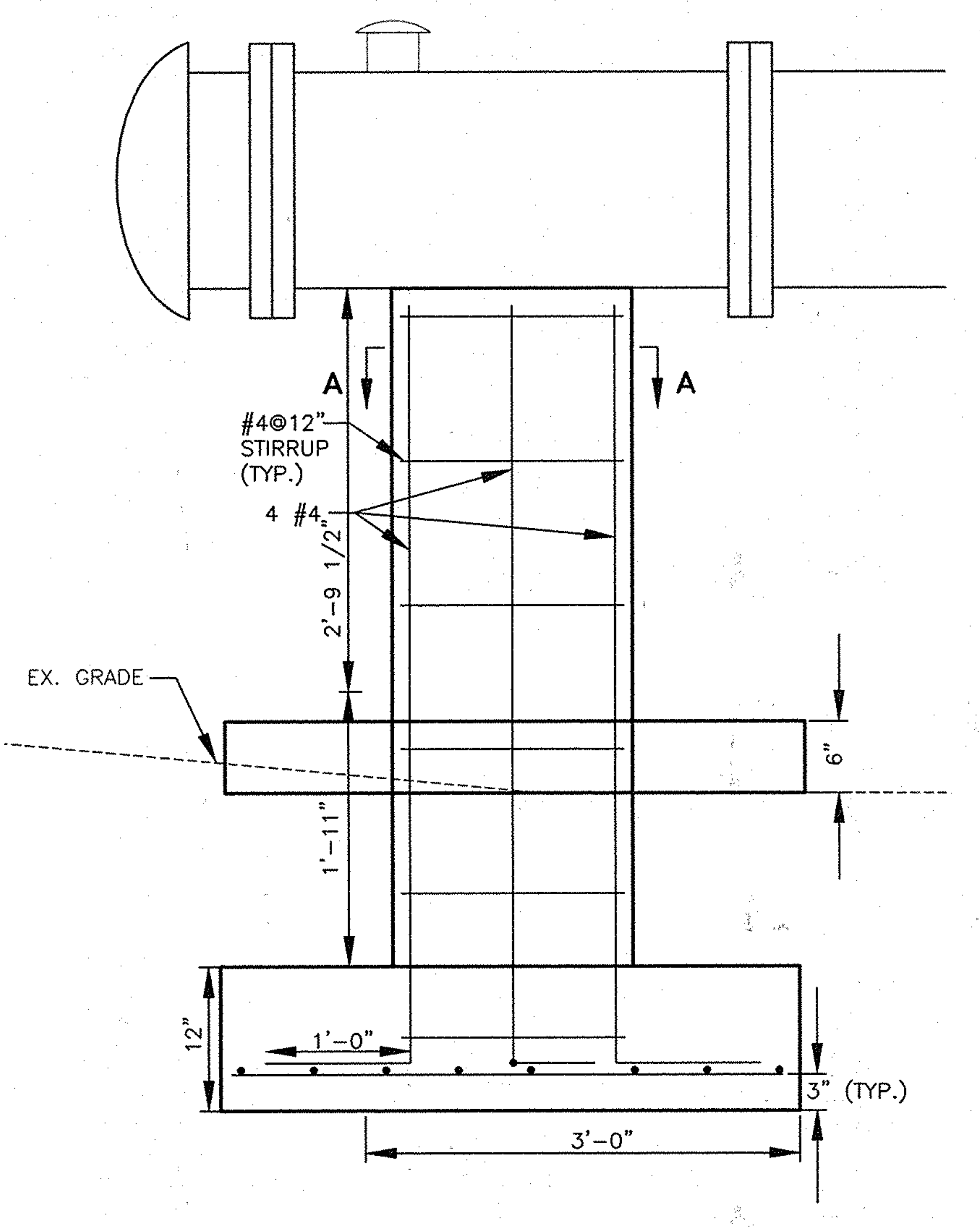


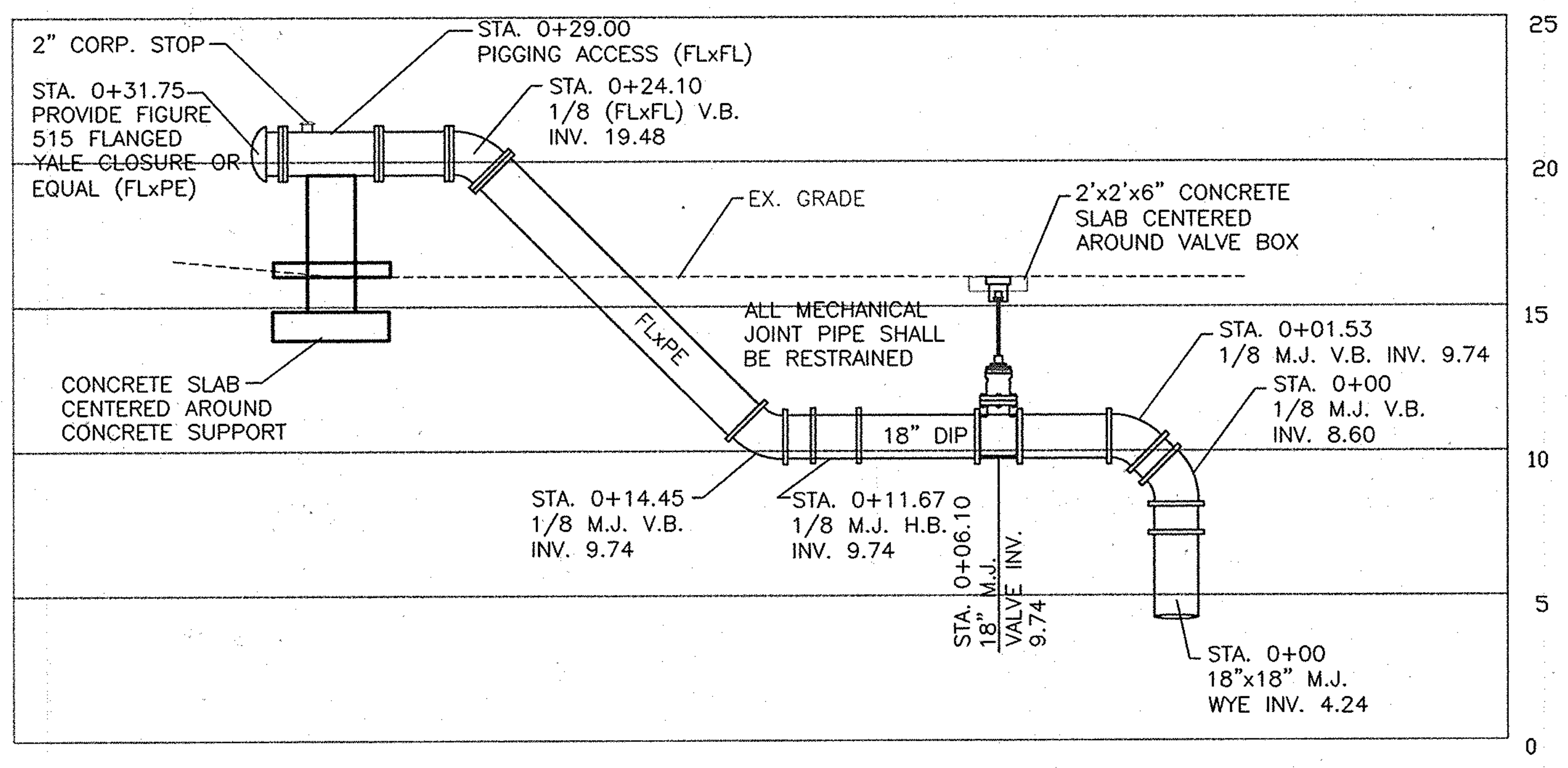
FIGURE 515 FLANGED YALE CLOSURE

SCALE : NTS



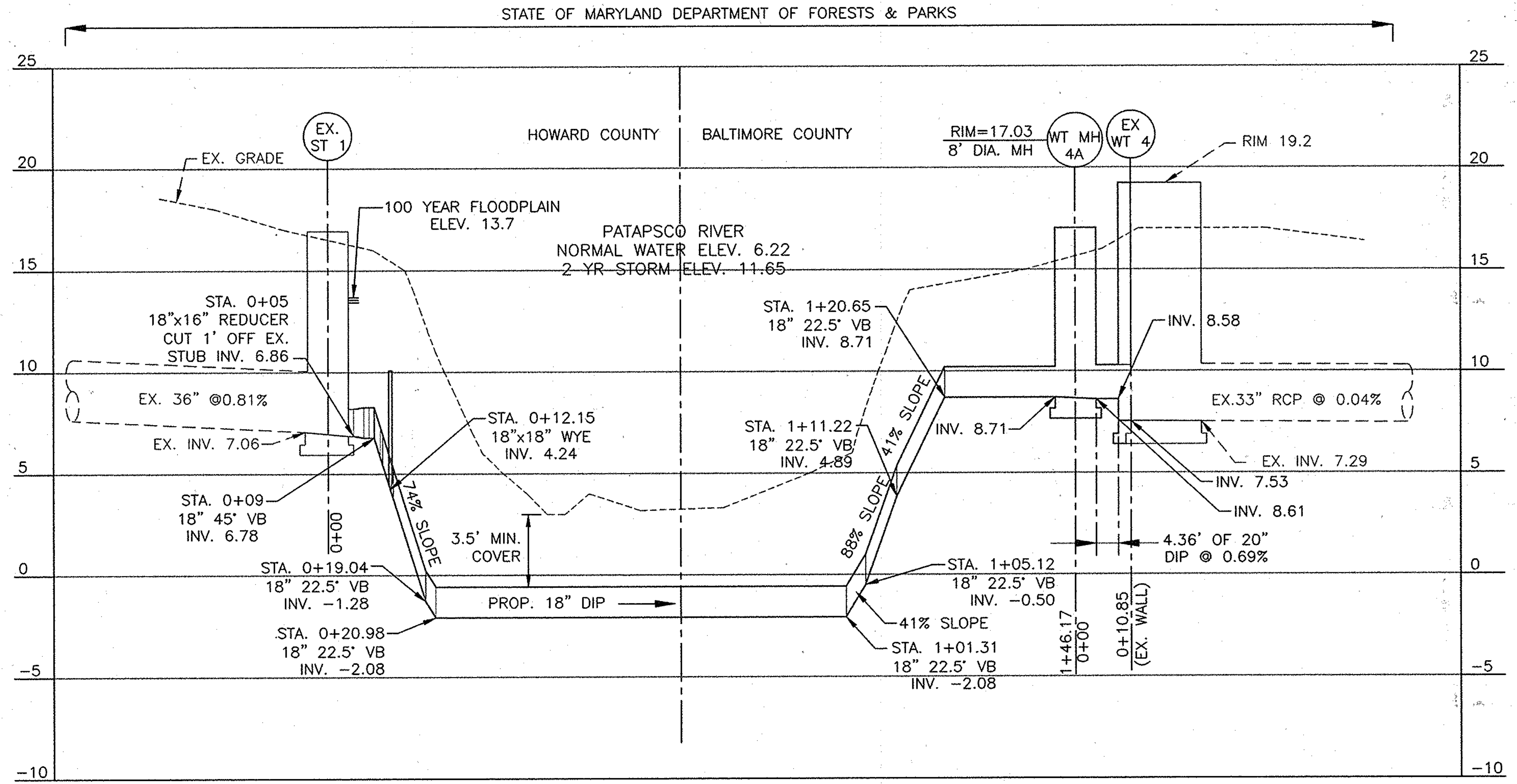
CONCRETE SUPPORT DETAIL

SCALE : 1" = 1'



PIGGING ACCESS PROFILE

SCALE : 1" = 5'



PROFILE

SCALE : HORIZ. 1" = 20'
VERT. 1" = 5'

NOTE: CONTRACTOR TO REMOVE THE TEMPORARY BRICK BULKHEAD IN THE SIPHON CHAMBER, ST-1, AT THE TIME OF SUBSTANTIAL COMPLETION OF THIS CONTRACT WHEN ALL STRUCTURES AND PIPE ARE READY TO RECEIVE FLOW.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL

Jeffrey P. West 10-17-13
DATE

BC-2 OF 7

DEPARTMENT OF PUBLIC WORKS **HOWARD COUNTY, MARYLAND** 10/15/13 DIRECTOR OF PUBLIC WORKS DATE Thomas E. Butler 10/7/13 CHIEF, BUREAU OF ENGINEERING DATE 10/10/13 CHIEF, BUREAU OF UTILITIES DATE 10/7/13 CHIEF, UTILITY DESIGN DIVISION WD DATE	**Dewberry**® Dewberry Consultants LLC 3106 LORD BALTIMORE DRIVE SUITE #110 BALTIMORE, MARYLAND 21244 PHONE: 410.265.9500 FAX: 410.265.8875	THOMAS N. DALLAPALU No. 10966	DES: LAL DRN: RLI CHK: TND DATE: 10/2013	BY / NO. / REVISIONS / DATE

18" SIPHON IMPROVEMENT

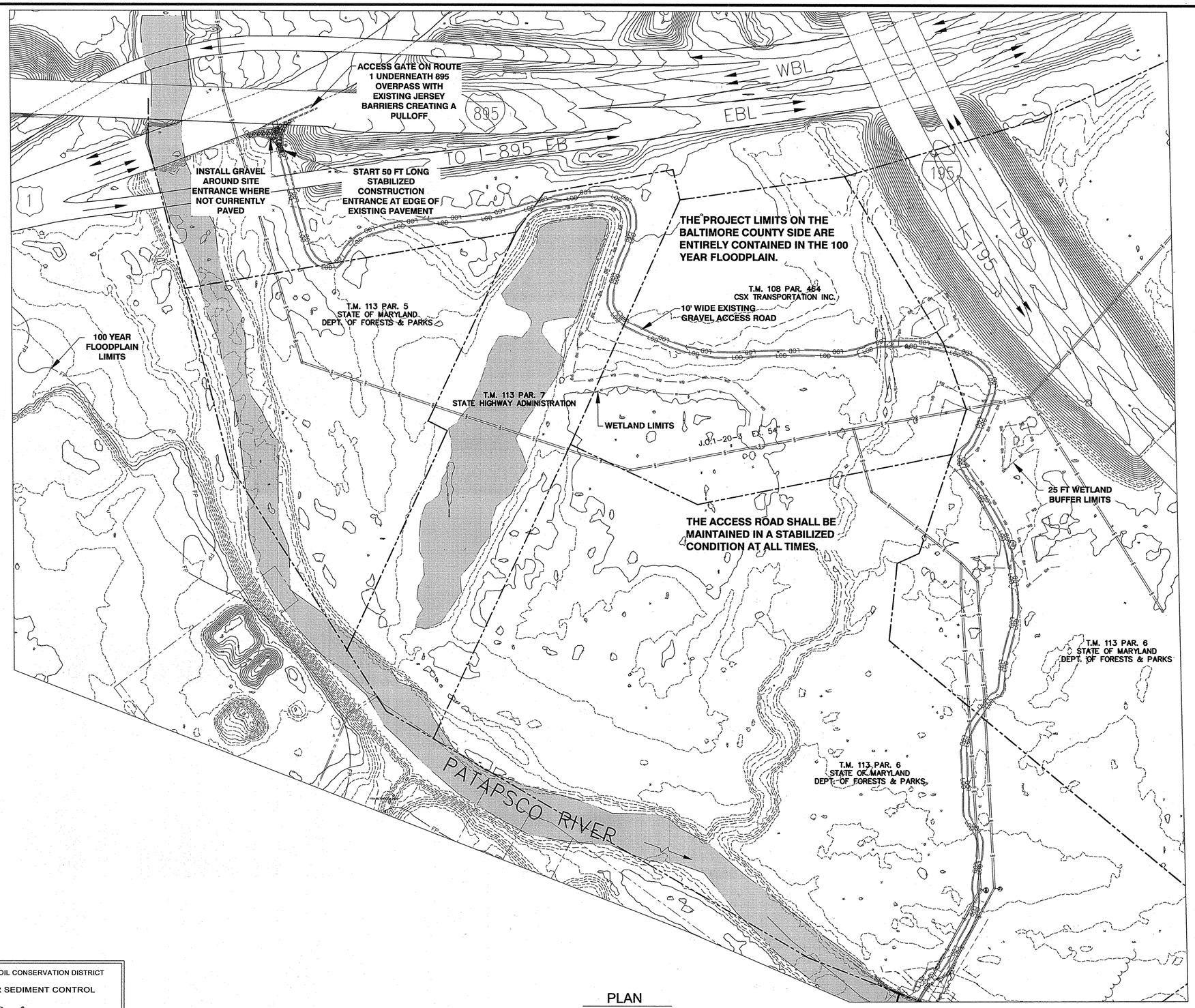
600' SCALE MAP NO. 38   BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN
INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1   **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 4 OF 14



PLAN
SCALE : 1" = 100'

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL

Jeffery R. Wast 10-17-13
DATE

BC-3 OF 7

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	10/15/13 DATE	CHIEF, BUREAU OF ENGINEERING	10/7/13 DATE
CHIEF, BUREAU OF UTILITIES	10/16/13 DATE	CHIEF, UTILITY DESIGN DIVISION WD	10/7/13 DATE

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PHONE: 410.265.9500
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STATE OF MARYLAND — THOMAS N. DALLAFIELD — No. 10960 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

BALTIMORE COUNTY ACCESS ROAD

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE: SHOWN

SHEET 5 OF 14

Plotted by: tdavid on Plot Date: Oct. 01, 2013 - 4:20pm
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Last Saved: Sep. 30, 2013 - 3:09pm
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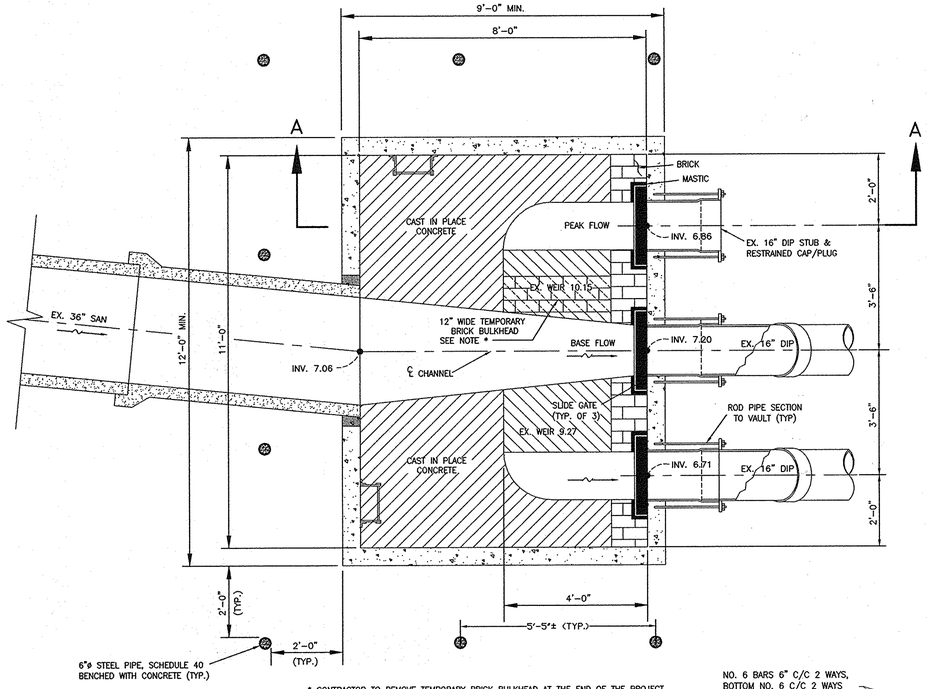
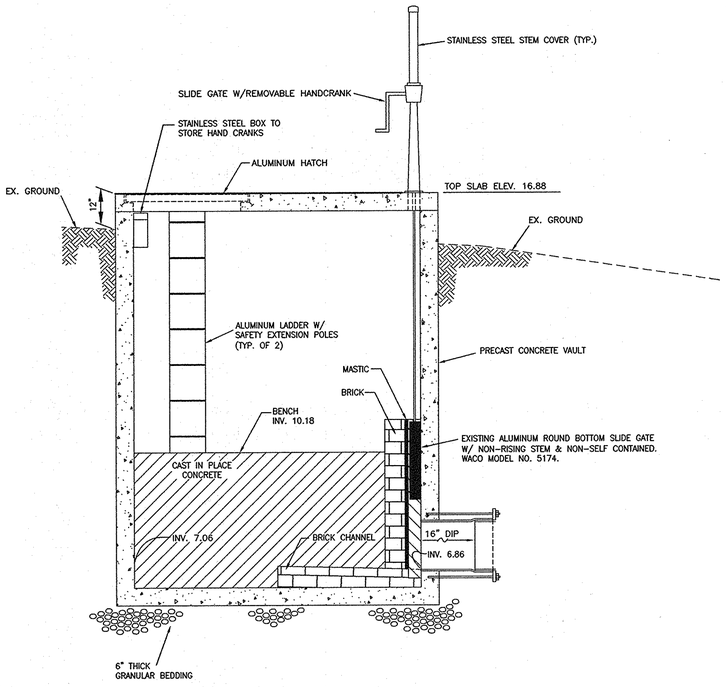


* CONTRACTOR TO REMOVE TEMPORARY BRICK BULKHEAD AT THE END OF THE PROJECT, AFTER THE NEW SIPHON AND STRUCTURES ARE IN PLACE, INSPECTED AND READY FOR SERVICE.

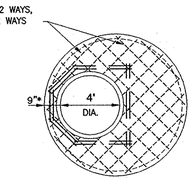
PLAN OF EXISTING STRUCTURE 1

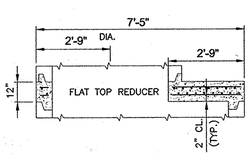
SCALE : 1/2" = 1'-0"

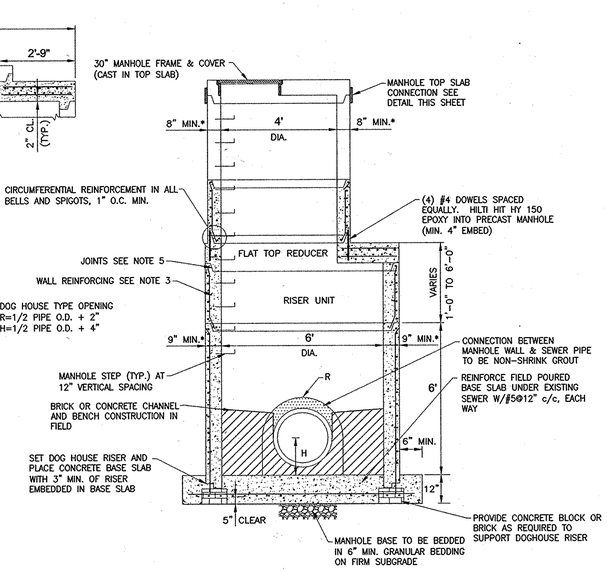


SECTION A–A

SCALE : 1/2" = 1'-0"

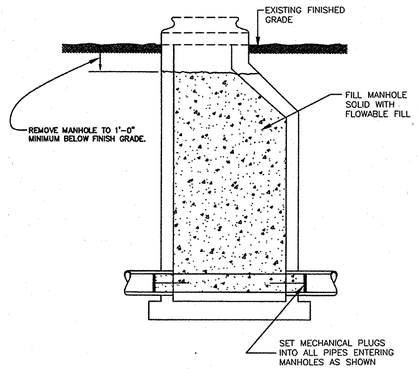






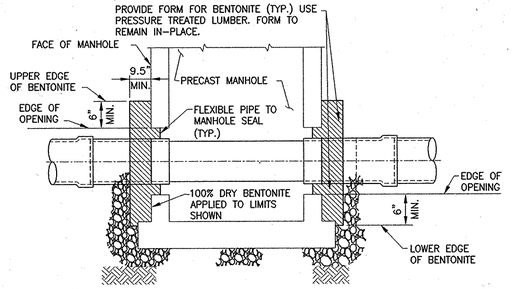
6'–0" DIA. DOGHOUSE PRECAST MANHOLE

SCALE : NTS



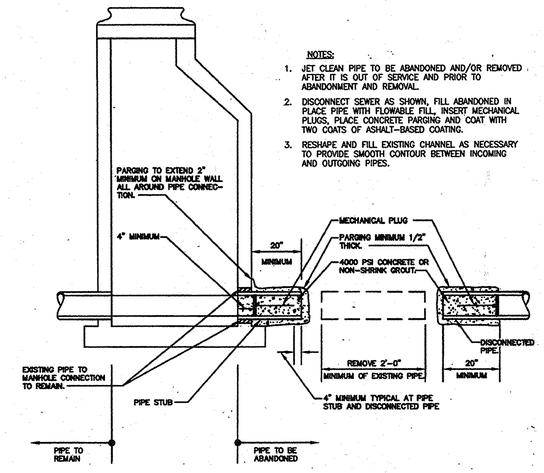
COMPLETE MANHOLE ABANDONMENT AT EX. MANHOLE 280

NOT TO SCALE



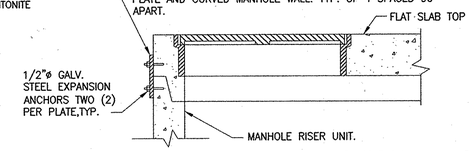
PIPE TO MANHOLE CONNECTIONS

NOT TO SCALE



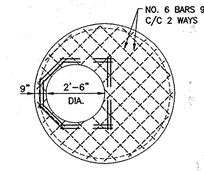
ABANDONMENT OF PIPE AT EX. MANHOLES 279, 280, & 281 AND LEFT IN PLACE

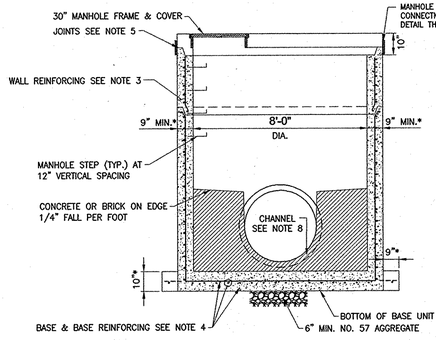
NOT TO SCALE



MANHOLE TOP SLAB CONNECTION

NOT TO SCALE





* DIMENSIONS TO BE CONFIRMED BY THE MANUFACTURER.

8'–0" DIAMETER PRECAST MANHOLE

SCALE : NTS

6'-0" & 8'-0" DIAMETER MANHOLE NOTES:

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478 AND THE GENERAL NOTES APPLICABLE TO PRECAST MANHOLES ON STANDARD DETAIL G-5.11.
2. CONCRETE SHALL BE MIX NO. 6 (4500 PSI).
3. WALL REINFORCEMENT FOR BASE AND RISER UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.37 IN^2/FT. FOR THE 96" DIAMETER MANHOLE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 AND A-82. REINFORCEMENT BARS SHALL MEET ASTM A-615, GRADE 60.
4. BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.37 IN^2/FT. FOR THE 96" DIAMETER MANHOLE. THE BASE SHALL BE MONOLITHIC WITH THE BASE UNIT OR JOINTED PER MANUFACTURER'S DESIGN.
5. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING RUBBER O-RING GASKETS ASTM A-361 & C-443.
6. MINIMUM DISTANCE BETWEEN PIPE OPENINGS IN MANHOLE WALL SHALL BE 12 INCHES FROM THE EDGE OF ONE OPENING TO THE EDGE OF THE NEXT.
7. LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
8. MIX NO. 6 PRECAST CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED AND SHALL SLOPE TOWARD OUTLET AS DIRECTED BY THE ENGINEER.
9. MANHOLE INTERIOR LINER REQUIRED. REFER TO "SANITARY SEWER MANHOLES" SECTION OF THE SPECIAL PROVISIONS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/10/13
CHIEF, BUREAU OF UTILITIES — DATE 10/10/13
CHIEF, BUREAU OF ENGINEERING — DATE 10/9/13
CHIEF, UTILITY DESIGN DIVISION — DATE 10/7/13 WD

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STATE OF MARYLAND — THOMAS N. DALLAPORTA — No. 10965 — REGISTERED PROFESSIONAL ENGINEER

DES:	LAL
DRN:	RLI
CHK:	TND
DATE:	10/2013

BY	NO.	REVISIONS	DATE

EXISTING HOWARD COUNTY SIPHON STRUCTURE, MANHOLE 4, & MISCELLANEOUS DETAILS

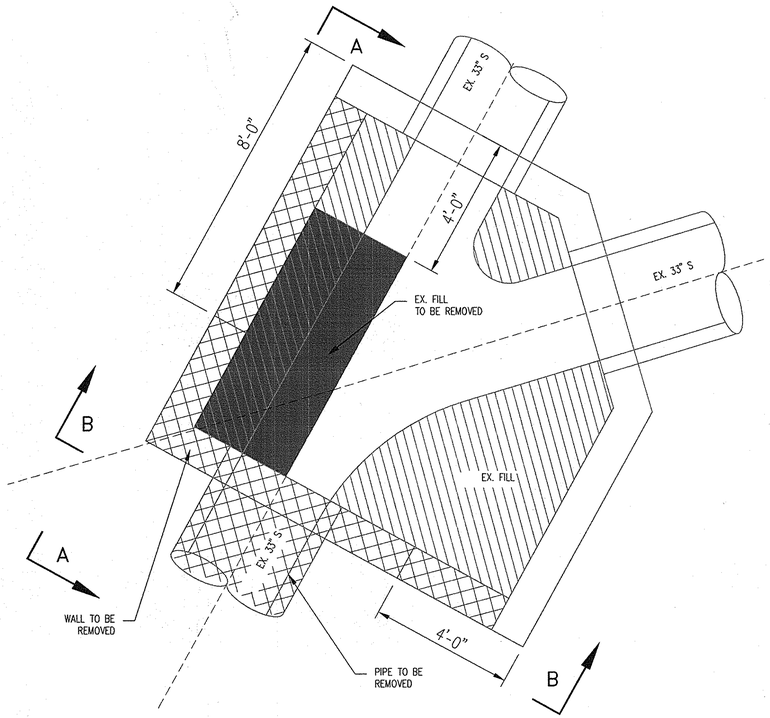
600' SCALE MAP NO. 38 — BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 — **HOWARD COUNTY, MARYLAND**

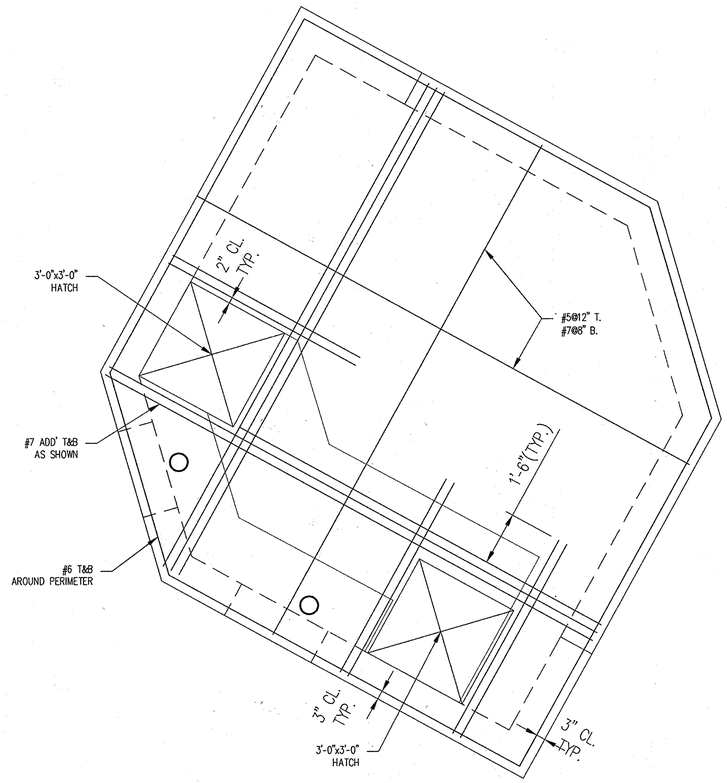
SCALE: SHOWN

SHEET 6 OF 14



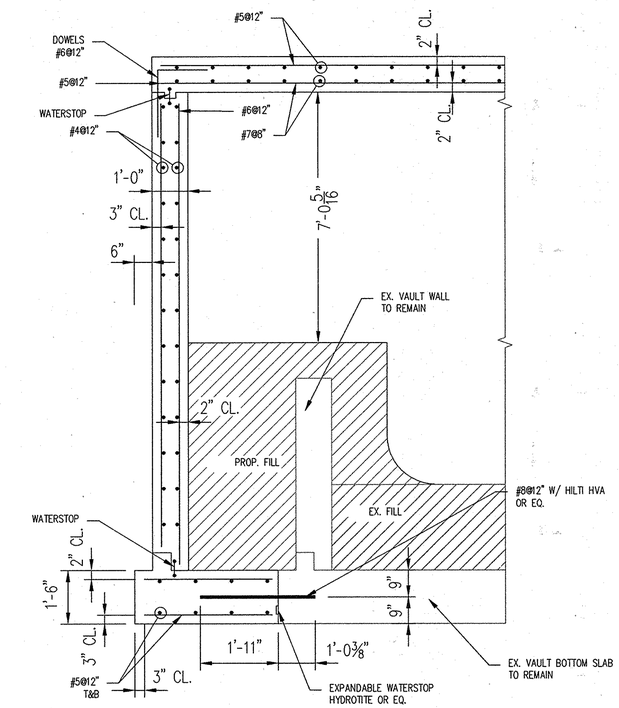
WALL DEMOLITION PLAN

SCALE : 1/2" = 1'-0"



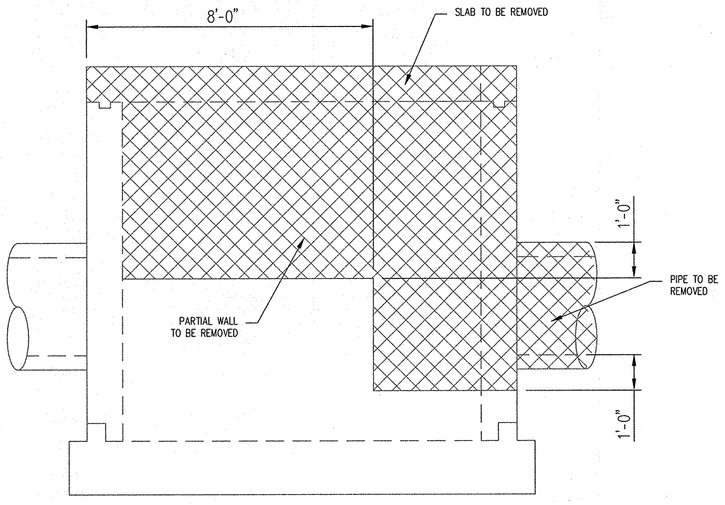
TOP SLAB REINFORCEMENT

SCALE : 1/2" = 1'-0"



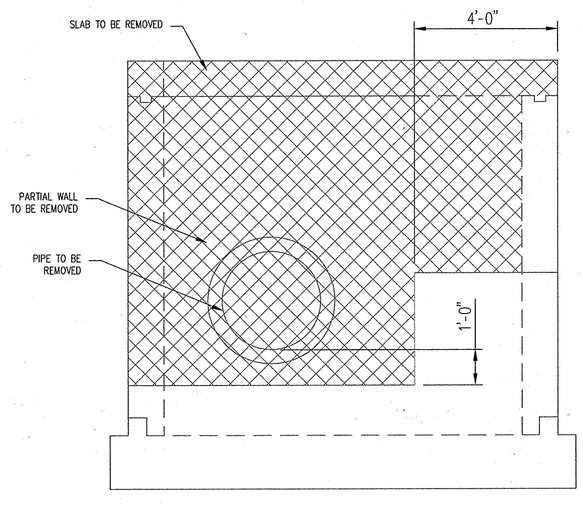
SECTION E-E (SHEET 8)

SCALE : 1/2" = 1'-0"



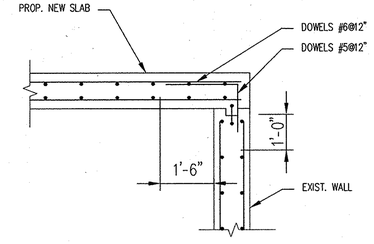
SECTION A-A

SCALE : 1/2" = 1'-0"



SECTION B-B

SCALE : 1/2" = 1'-0"



TOP SLAB TO EXISTING WALL CONNECTION DETAIL

SCALE : 1/2" = 1'-0"

NOTE: CONTRACTOR SHALL CAREFULLY DEMOLISH AND REMOVE TOP SLAB AWAY FROM EXISTING TOP OF SIDE WALLS WITH THE INTENTION TO RETAIN THE EXISTING KEY AND #5 DOWELS. IF NOT POSSIBLE, THE CONTRACTOR SHALL NEATLY SAW CUT AWAY PORTIONS OF JAGGED CONCRETE WALL AT THE DIRECTION OF THE ENGINEER.

SEE GENERAL NOTES ON SHEET 8.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/5/13
CHIEF, BUREAU OF ENGINEERING — DATE 10/7/13
CHIEF, BUREAU OF UTILITIES — DATE 10/10/13
CHIEF, UTILITY DESIGN DIVISION WD — DATE 10/7/13

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STATE OF MARYLAND — THOMAS N. DALLAS, JR. — No. 9905 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

VAULT 4 EXTENSION

600' SCALE MAP NO. 38 — BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN
INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 — **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 7 OF 14

GENERAL NOTES

1. CONSTRUCTION REQUIREMENTS AT EXISTING STRUCTURE:

1.1. THE CONTRACTOR SHALL FIELD VERIFY EXISTING FOUNDATION CONDITIONS ADJACENT TO VAULT EXTENSION. IF CONDITIONS DIFFER FROM THOSE SHOWN, NOTIFY ENGINEER IMMEDIATELY.

1.2. SIZES, ELEVATIONS, AND DIMENSIONS OF EXISTING ELEMENTS ARE BASED ON EXISTING DRAWINGS AND ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS/MEASUREMENTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE STARTING WORK.

1.3. THE CONTRACTOR SHALL STAGE HIS CONSTRUCTION SEQUENCE SO AS NOT TO UNDERMINE THE EXISTING FOUNDATIONS OR VAULT EXTENSION DURING THE CONSTRUCTION PROCESS.

1.4. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ANY AND ALL WORK NECESSARY FOR CONSTRUCTION SAFETY AND PROTECT EXISTING FACILITIES. EXCEPT AS SHOWN ON DEMOLITION PLAN, ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE OWNER.

2. CAST IN PLACE CONCRETE:

2.1. CONCRETE SHALL ATTAIN MINIMUM 28 DAY STRENGTH OF 4500 PSI.

2.2. ALL REINFORCING STEEL FOR CONCRETE SHALL CONFORM TO ASTM SPECIFICATIONS A615, GRADE 60 FOR BARS.

2.3. SEE CAST-IN-PLACE CONCRETE IN THE TECHNICAL SPECIFICATIONS, SECTION 03300.

3. FOUNDATIONS:

3.1. PROVIDE A MINIMUM NET ALLOWABLE BEARING CAPACITY OF 3,000 PSF

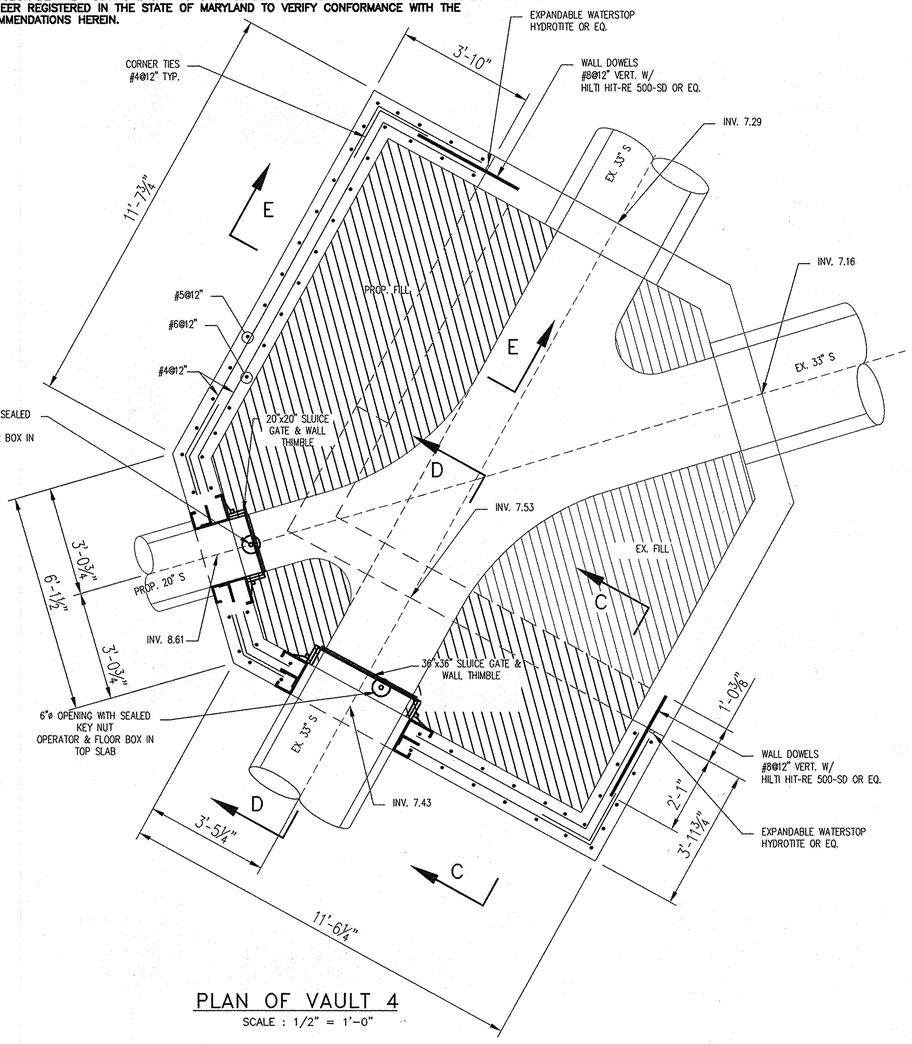
3.2. ALL SUBGRADE AND FOOTING EXCAVATIONS SHALL BE INSPECTED AND TESTED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF MARYLAND TO VERIFY CONFORMANCE WITH THE RECOMMENDATIONS HEREIN.

SEQUENCE OF WORK

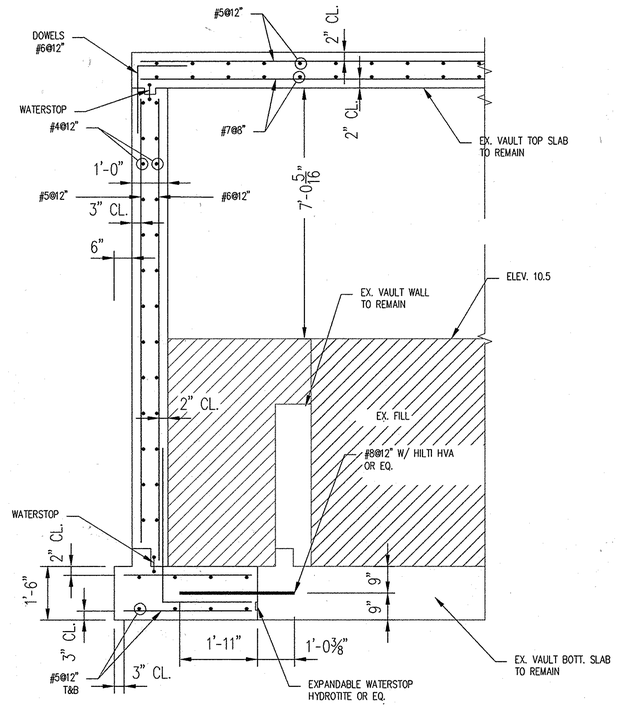
1. REMOVE EXISTING WALLS, PIPE AND EXISTING BENCH AS INDICATED ON DESIGN PLAN.
2. INSTALL DOWELS AS SHOWN ONTO EXISTING SLABS AND WALLS, FOLLOW MANUFACTURER'S INSTRUCTIONS.
3. INSTALL EXPANDABLE WATER STOP AS SHOWN, FOLLOW MANUFACTURER'S INSTRUCTIONS.
4. CONSTRUCT VAULT EXTENSION.
5. SEE SEWAGE BYPASS PUMPING IN THE SPECIAL PROVISIONS.

NOTES:

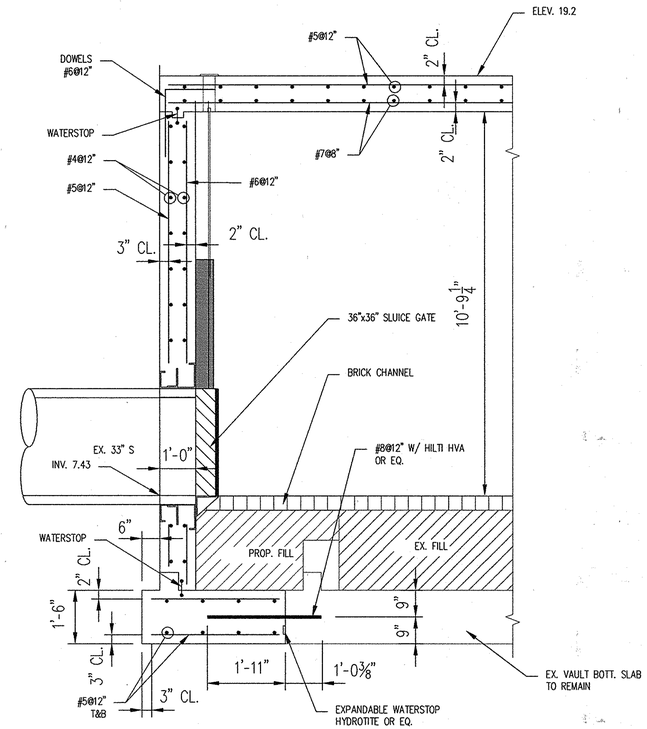
1. SLUICE GATES SHALL BE FONTAINE SERIES 20 MODEL 202-WALL MOUNTED (COMPLETE WITH WALL THIMBLE) AND NON-RISING STEM (NRI), WHIPPS, OR APPROVED EQUAL, RIGHT TURN OPEN, LEFT TURN SHUT.
2. A-LOK SINGLE CLAMP WATER STOPS SHALL BE USED AT PIPE ENTRY/EXIT POINTS OF THE DIVERSION STRUCTURE, AS INDICATED ON DRAWINGS.
3. GROUND LEVEL POSITION INDICATOR SHALL BE A SEALED UNIT WITH A STAINLESS STEEL SEALED FLOOR BOX. KEY NUT OPERATOR AND POSITION INDICATOR SHALL BE GPI-S SERIES AS MANUFACTURED BY DYNATORQUE, INC. OR APPROVED EQUAL. DIRECTION INDICATOR SHALL SHOW RIGHT TURN OPEN, LEFT TURN SHUT.
4. SEWAGE SHALL NOT, UNDER ANY CIRCUMSTANCES, BE DISCHARGED TO THE NEW SEWER UNTIL WRITTEN PERMISSION IS PROVIDED BY THE COUNTY.



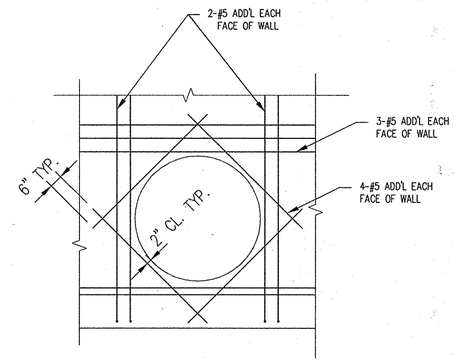
PLAN OF VAULT 4
SCALE : 1/2" = 1'-0"



SECTION C-C
SCALE : 1/2" = 1'-0"



SECTION D-D
SCALE : 1/2" = 1'-0"



ADDITIONAL REINFORCEMENT AT WALL OPENING
SCALE : 1/2" = 1'-0"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/15/13
CHIEF, BUREAU OF ENGINEERING — DATE 10/7/13
CHIEF, BUREAU OF UTILITIES — DATE 10/11/13
CHIEF, UTILITY DESIGN DIVISION — WD — DATE 10/7/13

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STATE OF MARYLAND — THOMAS N. DALLAVALLE — No. 9965 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

VAULT 4 EXTENSION & GENERAL NOTES

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN
INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 8 OF 14

ITEM 903 SEEDING MATERIALS

903-1.1 GENERAL.

This item provides specifications for seeding of areas as designated on plans or as directed by the MAA Engineer. The species, mixtures, and methods of application provided in this item have been designed to reduce the attractiveness of airport grounds to wildlife. Only MAA-approved species, mixtures, and rates of application provided in this item may be used to establish vegetation. All activities associated with seeding including soil preparation, seed application, fertilization, and maintenance shall also conform to these approved standards.

903-2.1 SEED.

All seed shall comply with the Maryland Seed Law (Agricultural Article of the Annotated Code of Maryland). Only MAA-approved species, mixtures, and rates of application provided in this item may be used to establish vegetation. Seed will be sampled and tested by an inspector from the Turf and Seed Section, Maryland Department of Agriculture (MDA), Annapolis, Maryland. All lawn and turf seed and mixtures shall be free from the following state-listed restricted noxious weeds:

com cockle (Agrostemma githago),
bentgrass (Agrostis sppl),
redtop (Agrostis gigantea)
wild onion (Allium canadense),
wild garlic (Allium vineale),
bindweed (Calstegia spp.),
dodder (Cuscuta spp.),
Bermuda grass (Cynodon dactylon), orchardgrass (Dactylis glomerata),
tall fescue (Festuca arundinacea)
meadow fescue (Festuca pratensis) velvetgrass (Holcus lanatus),
annual bluegrass (Poa annua),
rough bluegrass (Poa trivialis),
timothy (Phleum pratense), and
Johnson grass (Sorgum halepense).

Restricted noxious-weed seed may not exceed 0.5 percent by weight of any seed mixture. In addition, all seeds sold in Maryland shall be free from the following listed prohibited noxious weeds: balloonvine (Cardiospermum halicacabum), quackgrass (Elytrigia repens), sicklepod (Senna obtusifolia), sorghum (Sorghum spp.), Canada thistle (Cirsium arvense), plumeless thistle (Carduus spp.-includes musk thistle and curled thistle), and serrated tussock (Nassella trichotoma).

APPROVED PLANT SPECIES
MAA SEED MIXTURES

	Purity* Not Less than %	Minimum % Germination*	Pure Live Seed Factor
Certified Turf-Type Tall Fescue (*Festuca arundinacea*)	98	90	1.13
Certified Kentucky Bluegrass (*Poa pratensis*)	90	80	1.39
Fowl Bluegrass (*Poa palustris*)	90	80	1.39
Hard Fescue (*Festuca longifolia*)	98	90	1.13
Chewings Red Fescue (*Festuca rubra commutata*)	98	90	1.13
Annual Ryegrass (*Lolium multiflorum*)	95	85	1.24
Perennial Ryegrass (*Lolium perenne*)	90	80	1.39
Creeping Bentgrass (*Agrostis stolonifera*)	90	80	1.39
Switchgrass (*Panicum virgatum*)	90	80	1.39
Little Bluestem (*Andropogon scoparius*)	62	94	1.71

*The percentage weight of pure seed present shall be free of any agriculture seeds, inert matter, and other seeds distinguishable by their appearance.
*The percentage of germination shall be actual sprouts and shall not include hard seeds unless specifically permitted by the MAA Engineer.

903-2.1.2 PURITY. All seed shall be free of all state-designated noxious weeds listed in Paragraph 2.1.1 and conform to MAA specifications. To ensure compliance, MAA requires sampling and testing of seed by the Turf and Seed Section, Maryland Department of Agriculture (MDA). The Contractor shall furnish the MAA Engineer with duplicate signed copies of a statement by the Turf and Seed Section certifying that each lot of seed has been laboratory tested within six months of date of delivery. This statement shall include the following information: name and address of laboratory, date of test, lot number, the results of tests as to name, percentages of purity and of germination, percentage of weed content for the seed furnished, and, in the case of a mixture, the proportions of each kind of seed.

Seed shall be furnished in standard containers with the seed name, lot number, net weight, percentages of purity, germination rate and hard seed, and percentage of maximum weed seed content clearly marked. All seed containers shall be tagged with a MDA supervised mix program seed tag.

903-2.1.3 MIXTURES AND APPLICATION RATES. Only seed mixtures and application rates described in this item may be used unless otherwise approved by the MAA Engineer. Seed mixtures shall meet criteria detailed in Paragraph 903-2.1.2. Seed mixtures have been formulated to minimize the attractiveness of areas to wildlife of common landscape scenarios. The appropriate seed mixture for application will be designated based on environmental conditions and may vary from site to site. All planting rates listed are in pounds of Pure Live Seed (PLS) per acre.

Seed mixtures, application scenarios, and rates *for permanent cool-season grasses* are as follows:

a. Seed Mixture No. 1- relatively flat areas (grade less than 4:1) subject to normal conditions and regular mowing (Application rate= 234 lbs PLS/acre);
b. -Seed Mixture No. 2 - sloped areas (grade greater than 4:1) not subject to regular mowing (Application rate= 115lbs PLS/acre); and
c. Seed Mixture No. 3 - wetlands and their associated buffer zones (Application rate = 131lbs PLS/acre).

Seed Mixture No. 1: Relatively flat areas regularly mowed and exposed to normal conditions (Application rate= 234lbs PLS/acre)
Rate of Application (lbs of PLS/acre)
85% Certified Turf-Type Tall Fescue 192
10% Certified Kentucky Bluegrass 28
5% Perennial Ryegrass 14
Supplemental Seed
Annual Ryegrass 25
Seed Mixture No.2: Sloped areas not subject to regular mowing (Application rate= 115lbs PLS/acre)
Rate of Application (lbs of PLS/acre)
75% Hard Fescue 85
20% Chewings Fescue 23
5% Kentucky Bluegrass 7
Supplemental Seed
Redtop 3
Seed Mixture No. 3 - Wetland areas and their associated buffer zones (Application rate = 131 lbs PLS/acre)
Rate of Application (lbs of PLS/acre)
60% Creeping Bent Grass 83
30% Fowl Bluegrass 34
10% Switchgrass 14
Supplemental Seed
Redtop 3

903-2.1.4 SEEDING SEASONS. Application of seed and seed mixtures shall occur within a Specified seeding season unless otherwise approved by the MAA Engineer. No seed or seed mixtures are to be applied on frozen ground or when the temperature is at or below 35 degrees Fahrenheit (7.2 degrees Centigrade). Under these conditions, a layer of mulch should be applied in accordance with Item 905, Mulching, to stabilize the site, and permanent seeding should occur in the subsequent seeding season. Seed application may occur during the seeding season dates listed below. Seeding performed after October 20 should be a temporary cover of annual ryegrass and followed by overseeding of the appropriate seed mixture during the spring seeding season.

SEEDING SEASONS	
Permanent Cool-Season Grasses	March 1 to April 20 and August 1 to October 20, inclusive
Temporary Cover of Annual Rye/Redtop	March 1 to April 30 and August 1 to November 30, inclusive
Temporary Cover of Warm-Season Grasses (*Little Bluestem only*)	May 1 to July 31, inclusive. Rate of application should be 13.6 lbs. PLS per acre.

Seeding seasons are based on typical years and can be subject to variation, which may be modified by the MAA Engineer based on seasonal trends. If the time required to complete any of the operations necessary under this item, within the specified planting season or any authorized extensions thereof, extends beyond the Contract period, then such time will be charged against the Contract time, and liquidated damages will be enforced with respect to this portion of work.

903-2.2 LIME. Lime shall consist of ground limestone and contain at least 85 percent total carbonates. Lime shall be ground to a fineness so that at least 90 percent will pass through a No. 20 mesh sieve and 50 percent will pass through a No. 100 mesh sieve. Dolomitic lime or a high magnesium lime shall contain at least 10 percent magnesium oxide. Lime shall be applied by approved methods detailed in Section 903-3.3 of this item. The rate of application will be based on results of soil tests.

903-2.3 FERTILIZER. Fertilizer shall be standard commercial fertilizer (supplied separately or in mixtures) and meet the requirements of applicable state and federal laws (0-F-241) as well as standards of the Association of Official Agricultural Chemists.

Nitrogen-Phosphorus- Potassium (N-P-K) concentrations shall be determined from analysis of soil samples. Methods of fertilizer application shall conform to standards described in Section 903-3.3 of this Item. Fertilizer shall be furnished in standard containers that are clearly labeled with name, weight, and guaranteed analysis of the contents (percentage of total nitrogen, available phosphoric acid, and water-soluble potash). Mixed fertilizers shall not contain any hydrated lime or cyanamide compounds. Fertilizers failing to meet the specified analysis may be approved by the MAA Engineer, providing sufficient materials are applied to conform with the specified nutrients per unit of measure without additional cost to MAA.

The fertilizers may be supplied in the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;
b. A finely ground fertilizer soluble in water, suitable for application by power sprayers; or
c. A granular or pellet form suitable for application by blower equipment.

The rate of application will be based on results of soil tests performed by the University of Maryland Soil Testing Laboratory. By law, persons applying fertilizer to State-owned land shall follow the recommendations of the University of Maryland as set forth in the "Plant Nutrient Recommendations Based on Soil Tests for Turf Maintenance" and the "Plant Nutrient Recommendations Based on Soil Tests for Sod Production" (see Appendix B). Application of the fertilizer shall be in a manner that is consistent with the recommendations of the University of Maryland Cooperative Extension.

CONSTRUCTION METHODS AND EQUIPMENT

903-3.1 GENERAL. This section provides approved methods for the application of and includes standards for seedbed preparation, methods of application, and equipment to be used during the process. Lime and fertilizer shall be applied to seeded areas before the seed is spread. The mixture of seed will be determined for sites based on environmental conditions as described in Paragraph 903-2.1.3.

903-3.2 ADVANCE PREPARATION. Areas designated for seeding shall be properly prepared in advance of seed application. The area shall be tilled and graded prior to application of lime and fertilizer, and the surface area shall be cleared of any stones larger than 1 inch in diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. Damage caused by erosion or other forces that occur after the completion of grading shall be repaired prior to the application of fertilizer and lime. The Contractor will repair such damage, which may include filling gullies, smoothing irregularities, and repairing other incidental damage before beginning the application of fertilizer and ground limestone.

If an area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, all grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches (125 mm). Clods shall be broken and the top 3 inches (75 mm) of soil shall be worked into a satisfactory condition by discing or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

An area to be seeded shall be considered a satisfactory seedbed (without requiring additional treatment) if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches; the top 3 inches of soil is loose, friable, and is reasonably free from large clods, rocks, large roots, or other undesirable matter; appropriate amounts of fertilizer and lime have been added; and, if it has been shaped to the required grade immediately prior to seeding. For slope areas steeper than 3:1 (three horizontal to one vertical), the subsoil shall be loose to a depth of 1 inch.

After completion of tilling and grading, lime and fertilizer shall be applied within 48 hours according to the specified rate (Paragraphs 903-2.2 and 2.3) and methods (Paragraphs 903-3.3.1 and 903-3.3.2) approved by MAA. The seeding mixture shall be applied within 48 hours after application of lime and fertilizer. To firm the seeded areas, cultipacking shall occur immediately after seeding.

903-3.3 METHODS OF APPLICATION. Lime, fertilizer, and seed mixes shall be applied by either the dry or wet application methods that have been approved by MAA and are detailed below.

903-3.3.1 DRY APPLICATION METHOD

a. Liming. If soil test results indicate that lime is needed, the following procedures will be used: following advance preparation of the seedbed, lime shall be applied prior to .the application of any fertilizer or seed and only on seedbeds that have been prepared as described in paragraph 903-3.2. The lime shall be uniformly spread and worked into the top 2 inches of soil, after which the seedbed shall be properly graded again.
b. Fertilizing. Following advance preparations (and liming if necessary), fertilizer shall be spread uniformly at the specified rate to provide no less than the minimum quantity stated in Paragraph 903-2.3.
c. Seeding. Seed mixtures shall be sown immediately after fertilization of the seedbed. The fertilizer and seed shall be lightly raked to a depth of 1 inch for newly graded and disturbed areas.
d. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted using a cultipacker or an approved lawnroller.

903-3.3.2 WET APPLICATION METHOD HYDROSEEDING

a. General. The Contractor may elect to apply seed and fertilizer as per Paragraphs c and d of this section in the form of an aqueous mixture by spraying over the previously prepared seedbed using methods and equipment approved by MAA. The rates of application shall be as specified in Paragraphs 903-2.1 through 903-2.3.
b. Spraying Equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge capable of reading increments of 50 gallons or less over the entire range of the tank capacity. The liquid level gauge shall be mounted so as to be visible to the nozzle operator at all times. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used. The spraying equipment shall also include a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 pounds per square inch. The pressure pump assemblage shall be configured to allow the mixture to flow through the tank when not being sprayed from the nozzle. All pump passages and pipelines shall be capable of providing clearance for 5/8-inch solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. A pressure gauge shall be connected to and mounted immediately behind the nozzle. The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick- acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture to be supplied so that mixtures may be properly sprayed over a distance varying from 20 feet to 100 feet. One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For ease of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings. In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.
c. Mixtures. Lime shall be applied separately in the quantity specified, prior to the fertilizing and seeding operations. Lime should be added to and mixed with water at a concentration not to exceed 220 pounds of lime for every 100 gallons of water. After lime has been applied, the tank should be emptied and rinsed with fresh water. Seed and fertilizer shall be mixed together in the relative proportions specified, but the resulting concentration should not exceed 220 pounds of mixture per 100 gallons of water and should be applied within 30 minutes to prevent fertilizer burn of the seeds. All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. Brackish water shall not be used at any time. The Contractor shall identify all sources of water to the MAA Engineer at least two weeks prior to use. The Engineer may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the Engineer following such tests. All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within 30 minutes from the time they were mixed or they shall be wasted and disposed of at a location acceptable to the Engineer.
d. Spraying. Lime shall be sprayed upon previously prepared seedbeds on which the lime, if required, shall have been worked in already. The mixtures shall be applied using a high-pressure spray which shall always be directed upward into the air so that the mixtures will fall to the ground in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner that might produce erosion or runoff. Particular care shall be exercised to ensure that the application is made uniformly, at the prescribed rate, and to guard against misses and overlapped areas. Predetermined quantities of the mixture shall be used in accordance with specifications to cover specified sections of known areas. To check the rate and uniformity of application, the applicator will observe the degree of wetting of the ground or distribute test sheets of paper or pans over the area at intervals and observe the quantity of material deposited thereon. On surfaces that are to be mulched as indicated by the plans or designated by the MAA Engineer, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

903-3.4 MAINTENANCE OF SEEDED AREAS. The contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the Engineer. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work. When either the dry or wet application method outlined above is used for work performed out of season, the Contractor will be required to establish a good stand of grass of uniform color and density to the satisfaction of the Engineer. If at the time when the contract has been otherwise completed it is not possible to make an adequate determination of the color, density, and uniformity of such stand of grass, payment for the unaccepted portions of the areas seeded out of season will be withheld until such time as these requirements have been met.

ITEM 904 SODDING MATERIALS

904-1 This item provides standards for furnishing, hauling, and placing approved live sod on prepared areas as indicated on site plans. Sod will only be applied to landscape areas and shall be mowed frequently. All sodding activities shall conform to these specification at the locations shown on site plans or as directed by the MAA Engineer.

904-2.1 SOD. Sod furnished by the Contractor shall have a good cover of living or growing grass. This includes grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas in which the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. Grass sod shall be Maryland-certified or approved and shall comply with the Maryland Sod Law of the Annotated Code of Maryland (Agricultural Article Sections 9-101 through 9-110). Each load of sod shall bear a Maryland State Approved or Certified label at the time of delivery on the job. Sod shall be either: (1) Bluegrass sod containing not less than 80 percent Kentucky bluegrass *(Poa pratensis)* and not more than 20 percent Red Fescue *(Festuca rubra);* or (2) certified turf type-tall fescue *(Festuca arundinacea)* sod containing not less than 80 percent certified turf type-tall fescue *(Festuca arundinacea)* grass and not more than 20 percent Kentucky Bluegrass *(Poa pratensis)* and Red Fescue *(Festuca rubra*). Any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the emergent plant growth, shall be cut uniformly to a thickness not less than that specified in Section 904-3.4.

904-2.2 LIME. Lime shall conform to standards described in Section 903, "Seeding."

904-2.3 FERTILIZER. Fertilizers and application methods shall conform to the standards previously described in Section 903, "Seeding."

CONSTRUCTION REQUIREMENTS

904-3.1 GENERAL. Areas to be sodded shall be clearly indicated by site plans. Areas requiring special ground surface preparation, such *as* tilling, and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans. Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the MAA Engineer before sodding operations begin. The Contractor shall demonstrate to the MAA Engineer, before starting the various operations, that the application of required materials, such *as* fertilizer and limestone, will be made at the specified rates.

904-3.2 ADVANCE PREPARATION. If the area to be sodded is sparsely vegetated, weedy, barren and unworked, or packed and hard, all existing herbaceous vegetation shall be removed. The soil shall then be scarified or otherwise loosened to a depth of at least *5* inches (125 mm). Clods shall be pulverized, and the top 3 inches (75 mm) of soil shall be worked into a satisfactory bed by discing or use of cultipackers, rollers, drags, harrows, or other equipment approved by the MAA Engineer. The area shall then be properly graded *as* indicated by site plans.

After grading of areas is complete and prior to the application of fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 1 inch in diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be sodded will be considered a satisfactory seedbed without requiring additional treatment if it recently has been thoroughly loosened and worked to a depth of at least *5* inches *as* a result of grading operations and, if immediately prior to sodding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and is shaped to the required grade. For slope areas steeper than 3:1 (three horizontal to one vertical) the subsoil shall be loosened to a depth of 1 inch. Lime and fertilizer shall be applied within 48 hours after tilling *as* described in 903-3.3 and 3.4. The sod shall be applied immediately after the lime and fertilizer have been worked into the soil.

904-3.3 APPLICATION OF FERTILIZER AND LIME. Following ground surface preparation, fertilizer shall be uniformly spread *as* described in Section 903-3.3 at a rate that will provide at least the minimum quantity of fertilizer required. If the use of ground limestone is specified, it shall be spread *as* described in Section 903-3.3, "Methods of Application"; at a rate that will provide at least the minimum quantity of lime required. These materials shall be incorporated into the soil to a depth of at least 2 inches by discing, raking, or other methods approved by the MAA Engineer. Any stones larger than 1 inch in diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 OBTAINING AND DELIVERING SOD. The sod shall be well rooted, grown in the State of Maryland, and field grown for a minimum of 12 months. After inspection and approval of the sod by the MAA Engineer, the sod shall be cut with approved sod cutters to such a thickness that after placement on the prepared bed, but before compaction, it shall have a uniform attached soil thickness of at least 0.75 inch. Sod sections or strips shall be cut in uniform widths of at least 14 inches and in lengths of at least 18 inches, but not to lengths that might inhibit placement without breaking, tearing, or loss of soil. Where strips are required, the sod shall be rolled or folded undamaged, with the grass facing inward. The Contractor may be required to mow high grass before cutting sod.

Sod shall be transplanted within 24 hours from the time of harvest unless circumstances beyond the Contractor's control make storage necessary. In such cases, sod shall be stacked, kept moist, protected from exposure to the air and sun, and shall be kept from freezing. Sod shall only be harvested and moved when soil moisture conditions are such that favorable results can be expected. Where soil is too dry, permission to cut sod may be granted only after it has been sufficiently watered to moisten the soil to the depth at which the sod will be cut.

904-3.5 PLACING SOD. Sodding shall only be performed during seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the MAA Engineer, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod. The sod shall be moist and shall be placed on a bed, prepared according to Paragraphs 904-3.2 "Advance Preparation", and 904-3.3, "Application of Fertilizer and Lime" by hand. Pitchforks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be placed carefully by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, starting at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and ensure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod has been displaced during sodding operations, the workmen replacing it shall work from ladders or treaded planks to prevent further displacement. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately 1.5 inches below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than 1:2.5 and in V-shaped or flat-bottom ditches or gutters, the sod shall be secured wooden pegs at least 18 inches long and a cross-sectional area of at least 0.75-square inch, or by other methods of securing sod approved by the MAA Engineer. The pegs shall be driven flush with the surface of the sod. The pegs shall be of sufficient number and at adequate spacing to secure sod from displacement. The use of sod staples or other means of securing the sod from displacement may be approved by the MAA Engineer provided satisfactory results are expected.

904-3.6 WATERING. Adequate water and watering equipment shall be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 ESTABLISHING TURF.

904-3.7.1 GENERAL. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue to provide such care until final inspection and acceptance of the work.

904-3.7.2 PROTECTION. All sodded areas shall be protected against traffic or other use by warning signs and barricades approved by the MAA Engineer.

904-3.7.3 MOWING. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing of specific areas. In the event that weeds or other undesirable vegetation establishes to such an extent that, either cut or uncut, they threaten to smother the sodded species, the weeds shall be mowed and the clippings raked and removed from the area. Spot applications of an appropriate herbicide by a licensed applicator shall be approved by the MAA Engineer to remove invasive species. The appropriate herbicide shall be determined on a case-by-case basis, depending on the location and type of weed.

904-3.7.4 REPAIR. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil and shall then be re-sodded as specified in Paragraph 904-3.5, "Placing Sod", at the Contractor's expense.

ITEM 905 MULCHING MATERIALS

905-1.1 GENERAL. This item provides the Contractor with MAA-approved specifications for mulch and the application of mulch including distribution of mulch and securing of mulched areas. Areas to be mulched will be clearly shown on site plans or otherwise designated by the MAA Engineer.

905-2.1 TYPES OF MULCH. Acceptable mulch shall be composed of the materials listed below or composed of any locally available materials that are similar to those specified and approved by the MAA Engineer. Low-grade, shalely, soiled, partially rotted hay, straw, or other materials unfit for animal consumption will not be acceptable for use as mulch. Straw or other material that is fresh, excessively brittle, or is in such an advanced stage of decomposition as to smother or retard the planted grass, is not acceptable. Clean, weed-free straw may be used. Mulch materials containing matured seed with the potential to establish and be detrimental to the project or the surrounding area are not acceptable.

a. Shredded Hardwood Bark. Shredded hardwood bark shall consist of hardwood tree bark that has been milled and screened to ensure a maximum 4-inch (100-mm) particle size, provide a uniform texture, and be free from sawdust, toxic substances, and other foreign materials.
b. Wood Chips. Wood chips shall be produced by a chipping machine to a size specified by the MAA Engineer. Chips may not have been subjected to any conditions that would shorten their useful life or cause them to lose any of their value as mulch. Wood chips shall be free from bark, leaves, twigs, wood shavings, sawdust, toxic substances, and other foreign material.
c. Wood Cellulose Fiber. Wood cellulose fiber shall consist of a processed wood product with uniform fiber characteristics. The fiber shall be capable of remaining in a uniform suspension under agitation in water and blending with seed, fertilizer, and other additives to form a homogeneous slurry. The fiber shall perform satisfactorily in hydraulic seeding equipment without clogging or damaging the system. The slurry shall contain a green dye to provide easy visual inspection for uniformity of application.

Certification showing that the fiber material conforms to the following specifications shall be provided by the manufacturer:

Wood Cellulose Fiber Requirements	
Particle Length, in. (mm)	Approximately 1/2 (13)
Particle Thickness, in. (mm)	Approximately 1/16 (1.5)
Net dry Weight Content	Minimum as stated on bag
TAPPI* T 509, pH	4.0 to 8.5
Ash Content, TAPPI* Standard T 413, % max	7.0
Water Holding Capacity, % min	90

*Technical Association of Pulp and Paper Industry

The material shall be delivered in packages of uniform net weight of75 lbs (34 kg) or less and shall be clearly labeled with the name of the manufacturer, net weight, and a supplemental statement of the net weight content.

905-2.2 INSPECTION. Within five days after acceptance of the bid, the Contractor shall provide representative samples of mulch material to be used to the MAA Engineer and identify the source of the material and quantities of mulch materials available. The samples provided may be used as standards with the approval of the MAA Engineer and any materials brought on the site that do not meet these standards may be rejected.

CONSTRUCTION REQUIREMENTS

905-3.1 ADVANCE PREPARATION. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding unless otherwise specified. The application and spreading of mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

905-3.2 APPLICATION OF MULCH. The Contractor shall evenly apply mulch materials to areas indicated by site plans or otherwise designated by the MAA Engineer. Cellulose-fiber or wood-pulp mulch shall be applied at the rate of 1,500 pounds (dry weight) per acre. Mulch may be blown on the slopes and use of cutters in the equipment for this purpose will be permitted to the extent that at least 95 percent of the mulch in place on the slope is 6 inches or more in length. When mulch applied by the blowing methods is cut, the loose depth in place shall be 1 to 2 inches. Cellulose fiber or wood-pulp mulch shall be applied as an aqueous mixture by spraying at the rate of 1,500 pounds (dry weight) per acre using spraying equipment approved by the MAA Engineer.

905-3.3 SECURING MULCH. Mulch shall be held in place by light discing, a thin coating of topsoil, pins, stakes, wire mesh, other methods approved by the MAA Engineer. If the "peg and string" method is used, the mulch shall be secured with stakes or wire pins driven into the ground on 5-foot centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crossed diagonally over the mulch. The stakes shall be firmly driven nearly flush to the ground to draw the twine down tightly onto the mulch.

905-3.4 MAINTENANCE OF MULCHED AREAS. The Contractor shall care for mulched areas until final acceptance of the project. Care required may consist of providing protection against traffic or other disturbances by placement of warning signs and/or barricades before or immediately after mulching has been completed. The Contractor may be required to repair or replace any mulching that is defective or becomes damaged before the project is finished and deemed satisfactory by the MAA Engineer. When, in the judgment of the MAA Engineer, defects or damage result from poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement will be borne by the Contractor. However, once the Contractor has completed the mulching of an area in accordance with the provisions of the specifications and to the satisfaction of the Engineer, no additional work at his expense will be required. Any subsequent repairs and/or replacements deemed necessary by the Engineer may be made by the Contractor and will be paid for as additional or extra work.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. Wood 10/17/13
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John R. Robertson 1/cs. 10/16/13
Howard Soil Conservation District Date

BC-4 OF 7

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DIRECTOR OF PUBLIC WORKS — DATE 10/15/13
CHIEF, BUREAU OF ENGINEERING — DATE 10/7/13
CHIEF, BUREAU OF UTILITIES — DATE 10/15/13
CHIEF, UTILITY DESIGN DIVISION WD — DATE 10/7/13

Dewberry®
Dewberry Consultants LLC
3106 LORD BALTIMORE DRIVE
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BALTIMORE, MARYLAND 21244
PHONE: 410.265.9500
FAX: 410.265.8875

STATE OF MARYLAND — THOMAS N. DALLAM — No. 17966 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

SEDIMENT & EROSION CONTROL NOTES

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE: SHOWN

SHEET 9 OF 14

HOWARD COUNTY SEQUENCE OF OPERATION

1. PRE-CONSTRUCTION MEETING: NOTIFY THE HOWARD COUNTY CONSTRUCTION DIVISION (1-410-313-3800) AT LEAST 48 HOURS BEFORE COMMENCING WORK. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PERSONNEL HAVE MET ON SITE WITH THE COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.

2. CONTRACTOR MUST LOCATE AND PROCURE ALL STAGING AND STOCKPILING AREAS WHICH MUST BE APPROVED BY THE PROJECT INSPECTOR.

3. CLEAR AND GRUB THOSE AREAS FOR INSTALLATION OF SEDIMENT AND EROSION PERIMETER CONTROLS. REMOVE AND SALVAGE TOPSOIL.

4. INSTALL SEDIMENT AND EROSION CONTROL MEASURES INCLUDING THE STABILIZED CONSTRUCTION ENTRANCE AND SUPER SILT FENCE ALONG THE RIVER BANK.

5. WITH THE APPROVAL OF THE HOWARD COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR, CLEAR AND GRUB THE REMAINDER OF THE SITE.

6. PERFORM THE FOLLOWING SEQUENCE FOR EACH DAY OF UTILITY CONSTRUCTION OPERATIONS:
   A. EXCAVATE AND INSTALL SANITARY SEWER AND APPURTENANCES. PLACE BACKFILL AND COMPACT.
   B. PLACE TOPSOIL, FINE GRADE, SEED AND APPLY MULCH TO DISTURBED AREA.
   C. FURNACE AVENUE IS TO BE SWEPT FREE OF DIRT AND DEBRIS.

7. DIRECT ALL WATER PUMPED DURING TRENCH DEWATERING OPERATIONS TO AN APPROVED PORTABLE SEDIMENT TANK. CLEAN OUT TANK WHEN ONE-THIRD (1/3) FILLED WITH SILT. HAUL SEDIMENT TO A COUNTY APPROVED SITE.

8. NO EXCAVATED MATERIAL MUST BE PLACED IN THE DITCH ADJACENT TO THE EXISTING ROADWAY. THE CONTRACTOR MUST TAKE PRECAUTIONS TO PREVENT THE DISTURBANCE OF EXISTING VEGETATED AREAS TO THE EXTENT POSSIBLE. ANY EXISTING VEGETATED AREAS DISTURBED AS A RESULT OF THE CONTRACTOR'S WORK OPERATIONS MUST BE STABILIZED BY THE END OF THE WORK DAY.

9. STABILIZE THE TOP OF ALL TRENCHES BY THE END OF EACH WORK DAY. ALL EXCESS STOCKPILED SOIL REMAINING AFTER REFILLING OF THE TRENCH(S) MUST BE REMOVED FROM THE SURFACE AND HAULED FROM THE SITE BY THE END OF THE WORKING DAY. THE CONTRACTOR MUST BE RESPONSIBLE FOR OBTAINING ALL PERMITS FOR HIS OFF-SITE STOCKPILE AREAS. THE CONTRACTOR MUST ALSO ADEQUATELY CLEAN ALL DIRT AND MUD OFF THE ROADWAYS BY THE END OF EACH WORKING DAY.

10. STABILIZE ANY REMAINING DISTURBED AREAS AS REQUIRED.

11. REMOVE ANY REMAINING SEDIMENT CONTROLS AFTER PRIOR APPROVAL FROM HOWARD COUNTY INSPECTIONS AND PERMITS DIVISION. FINE GRADE AND STABILIZE AREA FORMERLY OCCUPIED BY PERIMETER CONTROLS.

12. ONE HALF OF THE RIVER MAY BE DIVERTED AT ONE TIME FOR THE PURPOSED OF PIPE INSTALLATION AND INVERT PROTECTION WITH A MINIMUM OPENING OF 45% OF THE RIVER FOR FLOW WIDTH. STREAM CONSTRUCTION MAY NOT EXCEED 2 WEEKS.

HOWARD COUNTY SEDIMENT CONTROL GENERAL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. 410-313-1855.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THE PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN; A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

6. ANY SEDIMENT CONTROL PRACTICES WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

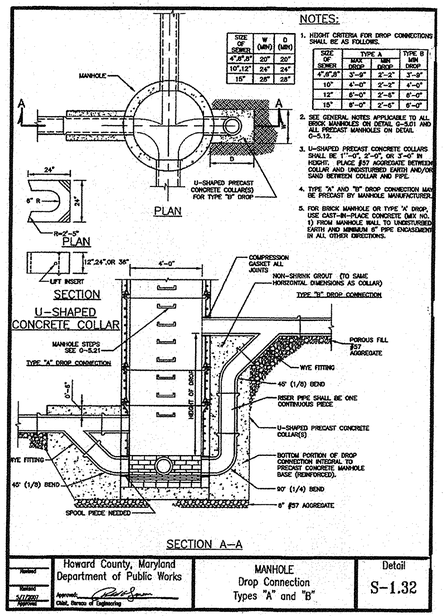
7. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

8. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY MUST BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH MUST BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

10. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.

11. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS TO BE STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.



TYPE A MANHOLE DROP CONNECTION
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	10/15/13 DATE	CHIEF, BUREAU OF ENGINEERING	10/7/13 DATE
CHIEF, BUREAU OF UTILITIES	10/10/13 DATE	CHIEF, UTILITY DESIGN DIVISION WD	10/7/13 DATE

Dewberry
Dewberry Consultants LLC
3106 LORD BALTIMORE DRIVE
SUITE #110
BALTIMORE, MARYLAND 21244
PHONE: 410.265.9500
FAX: 410.265.8875

STATE OF MARYLAND — THOMAS N. DALTAVILLE — No. 9965 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

HOWARD COUNTY SEDIMENT & EROSION CONTROL NOTES & DETAILS

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 10 OF 14

BALTIMORE COUNTY SEQUENCE OF OPERATION

1. NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, (410) 887–3226 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK. Notify MDE Inspection and Compliance Program, (410) 537–3510 at least 5 days prior to beginning work.
2. IF APPLICABLE, ORANGE HIGH VISIBILITY FENCE MUST BE MANUALLY INSTALLED ALONG THE LIMIT OF DISTURBANCE, WHERE THE LIMIT IS WITHIN 50 FEET OF THE FOREST BUFFER/CONSERVATION EASEMENT. THIS MUST BE COMPLETED BY AND INSPECTED AT THE PRE–CONSTRUCTION MEETING.
3. CLEAR AND GRUB FOR SEDIMENT & EROSION CONTROL MEASURES OR DEVICES ONLY.
4. INSTALL ALL SEDIMENT & EROSION CONTROL MEASURES AND DEVICES.
5. NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, UPON COMPLETION OF SAID INSTALLATION.
6. WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL AND THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE.
7. PROPOSED SEQUENCE OF CONSTRUCTION:
   A. COMMENCE PIPE INSTALLATION FROM EXISTING STRUCTURE TO MH 4A.
   B. MODIFICATIONS TO EXISTING STRUCTURE 4 MAY BE CONDUCTED CONCURRENTLY WITH THE AFORE MENTIONED.
   C. PROVIDE SANDBAG/STONE DIVERSION FOR INSTALLATION OF THE PIPE AND PLACEMENT OF INVERT PROTECTION & BANK PROTECTION TO BE PERFORMED CONCURRENTLY AND IN A TIME PERIOD OF NO MORE THAN 2 WEEKS.
8. DIRECT ALL WATER PUMPED DURING DEWATERING OPERATIONS TO AN APPROVED DEWATERING BASIN.
9. THE CONTRACTOR MUST TAKE PRECAUTIONS TO PREVENT THE DISTURBANCE OF EXISTING VEGETATED AREAS TO THE EXTENT POSSIBLE. ANY EXISTING VEGETATED AREAS DISTURBED AS A RESULT OF THE CONTRACTOR'S WORK OPERATIONS MUST BE STABILIZED BY THE END OF THE WORK DAY. STABILIZATION SHALL BE PERMANENT SEED AND MULCH.
10. STABILIZE THE TOP OF ALL TRENCHES BY THE END OF EACH WORK DAY. ALL EXCESS STOCKPILED SOIL REMAINING AFTER REFILLING OF THE TRENCH(S) MUST BE REMOVED FROM THE SURFACE AND HAULED FROM THE SITE BY THE END OF THE WORKING DAY. THE CONTRACTOR MUST BE RESPONSIBLE FOR OBTAINING ALL PERMITS FOR HIS OFF–SITE STOCKPILE AREAS. THE CONTRACTOR MUST ALSO ADEQUATELY CLEAN ALL DIRT AND MUD OFF THE ROADWAYS BY THE END OF EACH WORKING DAY.
11. STABILIZE ANY REMAINING DISTURBED AREAS AS REQUIRED.
12. UPON STABILIZATION OF SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

BALTIMORE COUNTY SEDIMENT CONTROL GENERAL NOTES

1. REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.
2. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, MINOR FIELD ADJUSTMENTS CAN AND WILL BE MADE TO INSURE THE CONTROL OF ANY SEDIMENT. CHANGES IN SEDIMENT CONTROL PRACTICES REQUIRE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT.
3. AT THE END OF EACH WORKING DAY, ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION.
4. FOLLOWING INITIAL SOIL DISTURBANCE OR RE–DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
   A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND
   B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
5. ANY CHANGE TO THE GRADING PROPOSED ON THIS PLAN REQUIRES RE–SUBMISSION TO BALTIMORE COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL.
6. DUST CONTROL WILL BE PROVIDED FOR ALL DISTURBED AREAS. REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", PG. H.22, FOR ACCEPTABLE METHODS AND SPECIFICATIONS FOR DUST CONTROL.
7. ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT PRIOR TO THE INITIATION OF THE CHANGE.
8. EXCESS CUT OR BORROW MATERIAL SHALL GO TO, OR COME FROM, RESPECTIVELY, A SITE WITH AN OPEN GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN.
9. ANY TEMPORARY STOCKPILE AREAS WILL BE LOCATED WITH IN THE LIMITS OF DISTURBANCE AND POSITIONED SUCH THAT ANY SEDIMENT FROM THE STOCKPILE FILL AREAS WILL BE CONTROLLED BY ONE OR MORE OF THE SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN. STOCKPILE SHALL BE LOCATED WHERE IT WILL NOT IMPEDE UPON OR IMPAIR THE FUNCTION OF ANY SEDIMENT CONTROL MEASURE IT IS UPSLOPE OF. STOCKPILE LOCATION NOT TO ALTER DRAINAGE DIVIDES.
10. PUMPING SEDIMENT–LADEN WATER INTO WATERS OF THE STATE IS STRICTLY PROHIBITED. ANY PORTABLE DEWATERING DEVICE MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE.
11. CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SEDIMENT CONTROL MEASURES AND DEVICES AFTER EVERY STORM EVENT. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO THE REMOVAL OF ALL ACCUMULATED SEDIMENT. GEOTEXTILE FABRIC SHALL BE REPLACED AS NEEDED TO ENSURE PROPER FUNCTION.
12. CONTRACTOR SHOULD ONLY OPEN THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.
13. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
14. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
15. REFER TO "MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION" BY THE WATER MANAGEMENT ADMINISTRATION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, REVISED NOVEMBER 2000, FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE HEREIN FOR WATERWAY CONSTRUCTION.

H–1 STANDARDS AND SPECIFICATIONS FOR MATERIALS

GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) AND CONFORM TO THE VALUES IN TABLES H.1.

		WOVEN SLIT-FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE[1]					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		900 lb		450 lb	
Apparent Opening Size[2]	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permittivity	ASTM D-4491	0.05 sec^{-1}		0.28 sec^{-1}		1.1 sec^{-1}	
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	70% strength		70% strength		70% strength	

[1] All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

[2] Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPEP) and conform to the values in Table H.1.

THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 95 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS, AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YARNS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.

WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACES. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP HEIGHT.

BALTIMORE COUNTY

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL

Jeffrey L. Wast 10-17-13
DATE

BC-5 OF 7

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	10/15/13 DATE	CHIEF, BUREAU OF ENGINEERING	10/7/13 DATE
CHIEF, BUREAU OF UTILITIES	10/10/13 DATE	CHIEF, UTILITY DESIGN DIVISION WD	10/7/13 DATE

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FAX: 410.265.8875

STATE OF MARYLAND — THOMAS N. DALLAPICCOLA — No. 19965 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

BALTIMORE COUNTY SEDIMENT & EROSION CONTROL NOTES & DETAILS

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 11 OF 14

Plotted by (time) on Plot Date: Oct 01, 2013 - 4:02pm
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Last Saved: Oct 01, 2013 - 4:01pm
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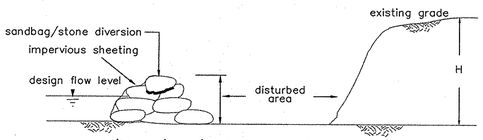
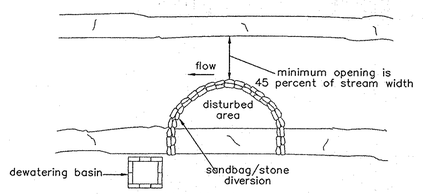
DETAIL 1.5: SANDBAG/STONE DIVERSION

TRANSVERSE SECTION VIEW



H/2+1 ft (0.3 m) for projects of duration < 2 weeks;
2-year flood elevation for projects of longer duration

PLAN VIEW



MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS

Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low rainfall. This temporary measure may not be practical in large channels.

MATERIAL SPECIFICATIONS

Materials for sandbag and stone stream diversions should meet the following requirements:

- *Riprap:* Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
- *Sandbags:* Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing & puncture, and should be woven tightly enough to prevent leakage of fill material (i.e. sand, fine gravel, etc.)
- *Sheeting:* Sheeting should consist of polyethylene or other materials which are impervious and and resistant to puncture and tearing.

MATERIAL SPECIFICATIONS

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Sandbag/stone diversions can be used independently or as components of other stream diversion techniques. Installation of this measure should be installed around the perimeter of the work area.

1. The diversion structure should be installed from upstream to downstream
2. The height of the sandbag/stone diversion should be a function of the duration of the project in the stream reach. For projects with a duration of less than 2 weeks, the height of the diversion should be one half of the streambank height, measured from the channel bed, plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For projects of longer duration, the top of the sandbag or stone diversion should correspond to bankfull height. For diversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a similar fashion.
3. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.
4. Sediment-laden water from the construction area should be pumped to a dewatering basin.

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

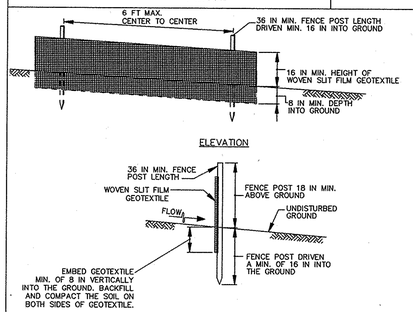
5. Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.
6. Sandbag or stone diversions should not obstruct more than 45 percent of the stream width. Additionally, bank stabilization measures should be placed in the constricted section if accelerated erosion and bank scour are observed during the construction time or if project time is expected to last more than 2 weeks.
7. Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.
8. Sediment control devices are to remain in place until all disturbed areas stabilized in accordance with an approved sediment and control plan and the inspecting authority approves their removal.

TEMPORARY IN STREAM CONSTRUCTION MEASURES *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES*

PAGE 1.5-1

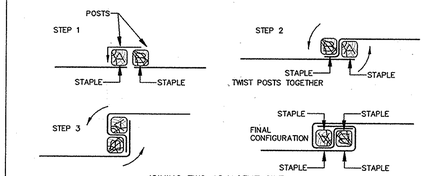
DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



ELEVATION

CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

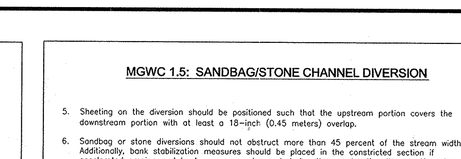
1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25 percent OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

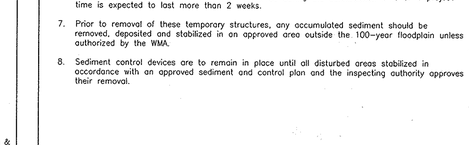
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



PERSPECTIVE VIEW



CROSS SECTION

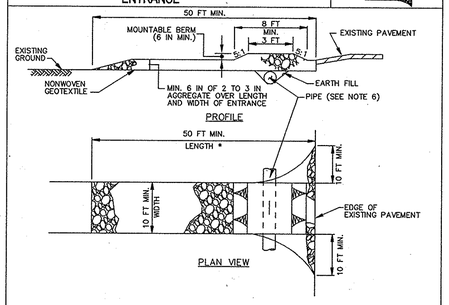
CONSTRUCTION SPECIFICATIONS

1. INSTALL 2½ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 6 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2¾ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HOG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND. LAY THE GEOTEXTILE IN THE BOTTOM OF THE 24 INCH WIDE TRENCH.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 8 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE UPHILL A MINIMUM OF 3 VERTICAL FEET TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURERS CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H - 1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MODIFIED FOR USE IN BALTIMORE COUNTY		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL

Jeffrey P. West 10/17/13
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson for GS. 10/16/13
Howard Soil Conservation District Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	10/15/13 DATE	CHIEF, BUREAU OF ENGINEERING	10/7/13 DATE
CHIEF, BUREAU OF UTILITIES	10/10/13 DATE	CHIEF, UTILITY DESIGN DIVISION WD	10/7/13 DATE

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Dewberry Consultants LLC
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SUITE #110
BALTIMORE, MARYLAND 21244
PHONE: 410.265.9500
FAX: 410.265.8875

STATE OF MARYLAND — THOMAS N. DALEY — No. 9066 — REGISTERED PROFESSIONAL ENGINEER

DES: LAL			
DRN: RLI			
CHK: TND			
DATE: 10/2013	BY	NO.	REVISIONS

SEDIMENT & EROSION CONTROL DETAILS

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

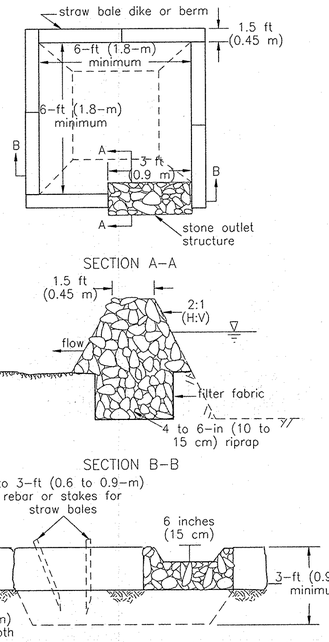
ELECTION DISTRICT NO. 1 **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 12 OF 14

BC-6 OF 7

Maryland's Guidelines To Waterway Construction
DETAIL 1.1: DEWATERING BASINS



TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.1 – 2	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MGWC 1.1: DEWATERING BASINS

Temporary measure for filtering sediment-laden water

DESCRIPTION

The work should consist of installing dewatering basins jointly with channel diversion measures to filter sediment-laden water from in-stream construction sites before the water re-enters the downstream reach.

EFFECTIVE USES & LIMITATIONS

Undersized dewatering basins will not adequately filter sediment-laden water from the construction site.

MATERIAL SPECIFICATIONS

Materials for dewatering basins should meet the following requirements:

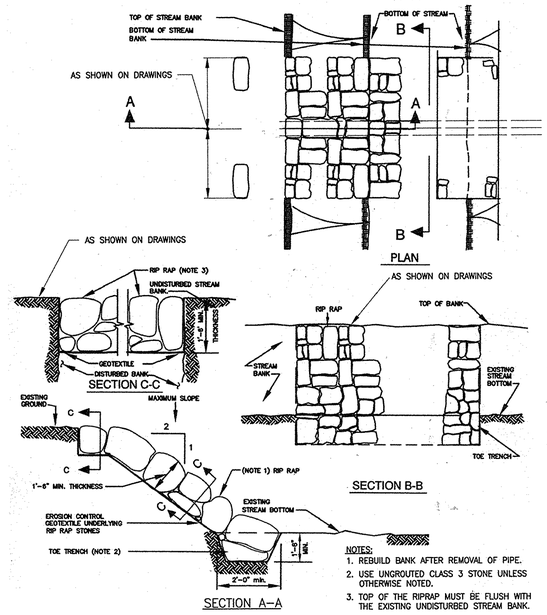
- *Riprap*: Riprap should be washed and have a diameter ranging from 4 to 6 inches (10 to 15 centimeters).
- *Filter Cloth*: Filter cloth should be a woven or non-woven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric should be inert to commonly encountered chemicals, hydro-carbons, ultraviolet light, and mildew and should be rot resistant.
- *Straw Bales/Silt Fence*: Straw bales should meet the criteria as specified in the *1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control*.

INSTALLATION GUIDELINES

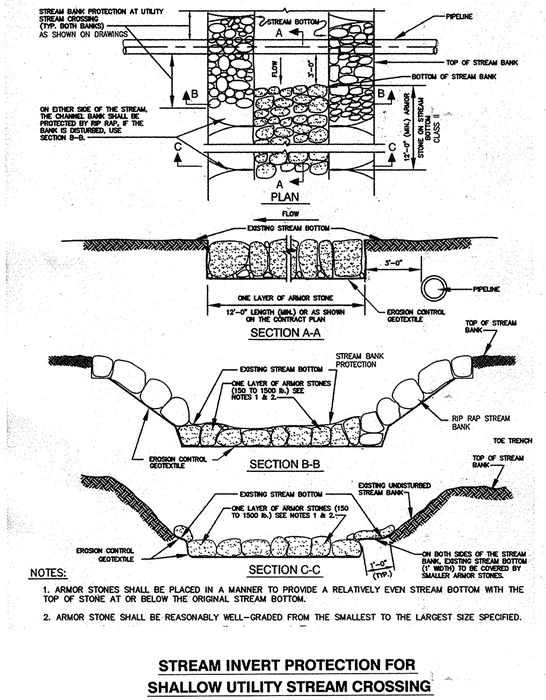
Due to the danger of overtopping by events greater than the design flow, dewatering basins require a vegetative buffer strip to filter sediment-laden overflow. A 50-foot (15-meter) minimum grass-covered buffer width is required for slopes less than 20 degrees (1:2.7) when right-of-way is not limited. For slopes greater than 20 degrees, basins should have a 100-foot (30-meter) minimum buffer width when practical.

All erosion and sediment control devices should be installed as the first order of business according to a plan approved by the Water Management Administration (WMA) or local authority. Dewatering basins should be constructed as follows (refer to Detail 1.1):

1. Excavated subsoil and topsoil should be stored separately and replaced in their natural order. Additionally, the excavated sediments should be prevented from entering the waterway by using sediment perimeter controls or other measures.
2. The dewatering basin should have a minimum depth of 3 feet (1 meter) where basin depth is measured from the top of the straw bales to the bottom of the excavation.
3. Once the dewatering basin becomes filled to one-half of the excavated depth, accumulated sediment should be removed and disposed of in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
4. Sediment control devices should remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal. All disturbed ground contours should be returned to their original condition unless otherwise approved by the WMA or local authority.



STREAM BANK PROTECTION
NOT TO SCALE

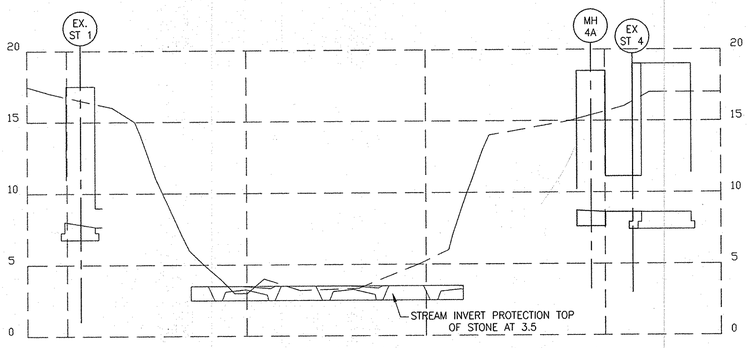


NOTES:
1. ARMOR STONES SHALL BE PLACED IN A MANNER TO PROVIDE A RELATIVELY EVEN STREAM BOTTOM WITH THE TOP OF STONE AT OR BELOW THE ORIGINAL STREAM BOTTOM.
2. ARMOR STONE SHALL BE REASONABLY WELL-GRADED FROM THE SMALLEST TO THE LARGEST SIZE SPECIFIED.

STREAM INVERT PROTECTION FOR SHALLOW UTILITY STREAM CROSSING
NOT TO SCALE

Site Analysis

Total Area of Site	2.18	Acres (Both Baltimore & Howard County)
Area Disturbed	0.10	Acres (Baltimore, Not including existing access road)
Existing Gravel Access Road	0.80	Acres (Baltimore)
Area Disturbed	1.18	Acres (Howard)
Area to be paved	0.00	Acres (Baltimore)
Area to be paved	0.80	Acres (Howard)
Area to be Vegetatively Stabilized	0.10	Acres (Baltimore)
Area to be Vegetatively Stabilized	0.28	Acres (Howard)
Total Cut	68	Cu. Yds.
Total Fill	0	Cu. Yds.
Offsite waste/borrow area location	To be determined by contractor.	



STREAM INVERT PROTECTION DETAIL
NOT TO SCALE

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100 YEAR FLOODPLAIN

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS MUST BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF ANY WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100 YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100 YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER MUST CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE MUST NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM: USE I WATERS: IN-STREAM WORK MUST NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES MUST BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS MUST BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffery P. West 10/17/13
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John R. Robertson /as. 10/16/13
Howard Soil Conservation District — Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	10/5/13 DATE	CHIEF, BUREAU OF ENGINEERING	10/7/13 DATE
CHIEF, BUREAU OF UTILITIES	10/10/13 DATE	CHIEF, UTILITY DESIGN DIVISION WD	10/7/13 DATE

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3106 LORD BALTIMORE DRIVE
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BALTIMORE, MARYLAND 21244
PHONE: 410.265.9500
FAX: 410.265.8975

STATE OF MARYLAND — THOMAS N. DALLAM — No. 9366 — REGISTERED PROFESSIONAL ENGINEER
I Certify
10/7/13

DES: LAL
DRN: RLI
CHK: TND
DATE: 10/2013

BY	NO.	REVISIONS	DATE

SEDIMENT & EROSION CONTROL DETAILS

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727
ELECTION DISTRICT NO. 1 **HOWARD COUNTY, MARYLAND**

SCALE: SHOWN

SHEET 13 OF 14

BC-7 OF 7

COORDINATE WITH MDSHA DISTRICT 7 OFFICE FOR PLACEMENT OF SIGNS (SEE NOTE 15)

COORDINATE WITH MDSHA, DISTRICT 4 OFFICE FOR PLACEMENT OF SIGNS (SEE NOTE 15)

PLACE ON TYPE III BARRICADES

FURNACE AVE 15-INCH SEWER

18-INCH INTERCEPTOR SIPHON

PLACE ON TYPE III BARRICADES

MAINTAIN ONE (1) PARKING ENTRANCE AND DELIVERIES ENTRANCE FOR FURNACE INN DURING BUSINESS HOURS

MOVE SIGN ASSEMBLY TO FURNACE AVENUE, AFTER TEMP. MH 286A, EX. MH 285 AND PROP. 15" DIC UP TO EX. MH 284 WORK IS COMPLETE.

COORDINATE WITH ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS FOR PLACEMENT OF SIGNS.

COORDINATE WITH ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS FOR PLACEMENT OF SIGNS.

COORDINATE WITH ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS FOR PLACEMENT OF SIGNS.

ROUNDABOUT

HOWARD COUNTY

BALTIMORE COUNTY

ACCESS ROAD

ANNE ARUNDEL COUNTY

DETOUR PLAN

1,000' 0' 1,000'

SCALE: 1" = 1,000'

LEGEND

TYPE III BARRICADE

SIGN SUPPORT

FACE OF SIGN

SIGN

M4-9(1) — FURNACE AVENUE (20" x 30") — 1

M5-1R — DETOUR — 6

R11-3a — ROAD CLOSED AHEAD, LOCAL TRAFFIC ONLY — 11

M4-8 — DETOUR — 2

NOTICE / FURNACE AVENUE CLOSED AT RACE ROAD / FOLLOW DETOUR (BLACK ON YELLOW, BLACK ON WHITE, BLACK ON ORANGE) — 7

5' MAX.

NOTICE / FURNACE AVENUE TO BE DETOURED ON OR ABOUT XX-XX FOR INFORMATION CALL XXX-XXX-XXXX (BLACK ON YELLOW, BLACK ON WHITE) — 12

NOTE: INSTALL 2 WEEKS PRIOR TO CONSTRUCTION (REMOVE AFTER START OF CONSTRUCTION)

M4-9L — DETOUR — 3

NOTICE / FURNACE AVENUE CLOSED AT PARADISE AVENUE / FOLLOW DETOUR (BLACK ON YELLOW, BLACK ON WHITE, BLACK ON ORANGE) — 8

M4-9R — DETOUR — 4

M4-8A — END DETOUR — 9

M5-1L — DETOUR — 5

R11-2 — ROAD CLOSED — 10

MAINTENANCE OF TRAFFIC NOTES:

1. THE DETOUR PLAN DEPICTS THE MINIMUM TRAFFIC CONTROLS REQUIRED DURING CONSTRUCTION TO MAINTAIN VEHICULAR TRAFFIC FLOW AND THE SAFETY OF VEHICLES, PEDESTRIANS, AND WORKERS. ADDITIONAL DEVICES OR ADJUSTMENT OF THE LOCATION OF DEVICES SHALL BE INCORPORATED AS NECESSARY.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF TRANSPORTATION OF THE EXACT DATE THAT FIELD ACTIVITIES WILL BEGIN. THIS NOTIFICATION SHALL BE FOLLOWED UP IN WRITING TO THE DEPARTMENT OF TRANSPORTATION WITH A COPY TO THE ENGINEER AT THE DEPARTMENT OF PUBLIC WORKS. IF THE CONTRACTOR DECIDES THAT MODIFICATIONS TO THE APPROVED DETOUR PLAN IS REQUIRED, HE MUST NOTIFY THE DEPARTMENT OF TRANSPORTATION PRIOR TO THE START OF ANY FIELD ACTIVITY. NO FIELD ACTIVITIES WILL BE ALLOWED WITHOUT AN APPROVED PLAN.
3. THE CONTRACTOR MUST CONTACT MR. KRIS JAGARAPU OF THE TRAFFIC ENGINEERING DIVISION AT (410) 313-2430 TWO (2) WEEKS BEFORE CONSTRUCTION BEGINS AND ONE (1) WEEK PRIOR ANY CHANGES TO THE DETOUR PLAN.
4. ALL TRAFFIC CONTROL DEVICES AND PRACTICES SHALL CONFORM WITH THE GUIDELINES OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", MD MUTCD (LATEST EDITION) AND THE MDSHA STANDARD SIGN BOOK.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY, INSTALL AND MAINTAIN ALL TRAFFIC CONTROL SIGNS AND EQUIPMENT FOR THE DURATION OF THIS CONTRACT.
6. ALL SIGNS SHALL BE COVERED WITH NON-TRANSPARENT COVERING WHENEVER THE DETOUR IS NOT IN USE.
7. ALL EXCAVATIONS AND TRENCHES ARE TO BE PLATED AT THE END OF THE EACH WORK DAY AND "STEEL PLATES AHEAD" WARNING SIGNS DISPLAYED IN ADVANCE.
8. THE CONTRACTOR SHALL MAINTAIN A MINIMUM FOUR FEET (4') WIDE PEDESTRIAN FOOTWAY OR IMPLEMENT AN APPROPRIATE PEDESTRIAN DETOUR.
9. CONTRACTOR SHALL MAINTAIN ACCESS TO EXISTING DRIVEWAY ENTRANCES.
10. CONTRACTOR SHALL ALLOW ACCESS TO EMERGENCY VEHICLES DURING CONSTRUCTION.
11. ALL TEMPORARY SIGNS FOR THIS PROJECT SHALL BE TYPE VII FLUORESCENT ORANGE SHEETING.
12. IF TEMPORARY PARKING RESTRICTIONS ARE REQUIRED, ALL AFFECTED RESIDENTS SHALL BE NOTIFIED FIVE (5) DAYS IN ADVANCE WITH SIGNING IN THE AREA OF PARKING RESTRICTION.
13. CONTRACTOR SHALL PROVIDE ACCURATE SKETCHES OF ALL EXISTING PAVEMENT MARKINGS TO BE DISTURBED DURING CONSTRUCTION PRIOR TO ANY CONSTRUCTION BEING DONE. SKETCHES TO BE APPROVED BY THE ENGINEER FOR RE-INSTALLATION OF DISTURBED PAVEMENT MARKINGS.
14. IMMEDIATELY UPON COMPLETION OF THE RELATED WORK, REMOVE THE TRAFFIC CONTROL DEVICES. COVER OR REMOVE ALL PERMANENT AND TEMPORARY SIGNS NOT IN USE.
15. FOR SIGNS ALONG US 1 (WASHINGTON BLVD.) CONTACT MDSHA, DISTRICT 7, UTILITIES AT 1-800-635-5199 OR ERIN KUHN, ADE-TRAFFIC MDSHA, DISTRICT 4 FOR APPROVAL OF SIGN LOCATIONS PRIOR TO INSTALLATION. FOR SIGNS ALONG HANOVER & RIDGE ROADS, CONNECT TRAFFIC ENGINEERING DIVISION IN ANNE ARUNDEL COUNTY AT 410-222-7331 FOR APPROVAL OF SIGN LOCATIONS PRIOR TO INSTALLATION. CONTACT HOWARD COUNTY TRAFFIC AT 410-313-2430 TO REVIEW THE LOCATIONS OF THE DETOUR SIGNS PRIOR TO INSTALLATION.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/15/13
CHIEF, BUREAU OF ENGINEERING — DATE 10/7/13
CHIEF, BUREAU OF UTILITIES — DATE 10/10/13
CHIEF, UTILITY DESIGN DIVISION WD — DATE 10/7/13

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STATE OF MARYLAND — THOMAS N. DALLAVALLE — No. 9305 — REGISTERED PROFESSIONAL ENGINEER

DES:	LAL
DRN:	RLI
CHK:	TND
DATE:	10/2013

BY	NO.	REVISIONS	DATE

MAINTENANCE OF TRAFFIC PLAN

600' SCALE MAP NO. 38 BLOCK NO. 5

FURNACE AVE SEWER AND DEEP RUN INVERTED SIPHON IMPROVEMENTS
CAPITAL PROJECT NO. S-6271, CONTRACT NO. 10-4727

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE: SHOWN

SHEET 14 OF 14